Tom. Paine's

from the Author.

April 1798

THE AMERICAN ORACLE.

COMPREHENDING

AN

ACCOUNT OF RECENT DISCOVERIES

IN THE ARTS AND SCIENCES,

WITH

A VARIETY OF RELIGIOUS, POLITICAL, PHYSICAL, AND PHILOSOPHICAL SUBJECTS,

Neceſſary to be known in all *Families*, for the Promotion of their preſent *Felicity* and future *Happineſs*.

BY THE HONOURABLE

SAMUEL STEARNS, L. L. D.

And Doctor of Phyſic; Aſtronomer to the Provinces of Quebec and New-Brunſwick; alſo to the Commonwealth of Maſſachuſetts, and the State of Vermont, in America.

Quam ampla ſunt Opera tua, O Jehova! Quam ea Omnia ſapienter feciſti!

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BRITISH MUSEUM

PREFACE.

KIND READER,

THE author in the courſe of his travels in nine of the American governments, and in England, Scotland, Ireland, and France, hath written the Miſcellaneous Work, contained in the ſubſequent pages which are now preſented to the public, for the purpoſe of ſpreading uſeful knowledge amongſt the human race.

It was not his deſign to have made thoſe things public at ſo early a period: but to gratify a number of his private friends, who eſteemed his productions in a light, perhaps beyond their intrinſic value, and who requeſted they might be immediately publiſhed for the benefit of mankind, he has been induced to abandon his original intention, and thus publiſh them to the world.

Some things in proſe are extracted from various authors; but the poetry with the exception of a few lines was compoſed by himſelf; and ſeveral pieces are added which he publiſhed in ſundry ſmall pamphlets in time paſt. As the ſubjects are numerous, brevity has neceſſarily been attended to, and every endeavour uſed to comprehend *multum in parvo*, and alſo to preſerve accuracy and correctneſs: But as er-

rors may have eſcaped his obſervation, ſhould any be diſcovered by his readers, he will thankfully receive their communications of the ſame, and carefully endeavour to attend to their correction in a future edition.

Philoſophy, and the liberal arts and ſciences, which have been nurtured by its progreſs and improvements, and has ſhone out with ſuch remarkable ſplendor in theſe modern ages, have been the objects of his early and unremitting ſtudy. The practice of phyſic, and the making of aſtronomical calculations engaged his attention for upwards of twenty years; he has had a familiar acquaintance with the lateſt and moſt approved authors upon the liberal and mechanical arts and ſciences; has attended lectures upon phyſiology, chymiſtry, magnetiſm, electricity, optics, aſtronomy, and other branches of natural and experimental philoſophy, all of which have contributed to furniſh him with the knowledge that is communicated to the public through the medium of this work, and has enabled him to complete it in ſuch a manner, that he hopes it may be productive of the good purpoſe for which it is intended; and, although it is called the *American Oracle*, yet, by reaſon of the variety of ſubjects which it comprehends, it will be found to be the *Oracle of the World*, becauſe it contains a general account of the univerſe.

As the work is calculated to diffuſe uſeful knowledge amongſt mankind, to induce them to ſhun vice, and to ſtimulate them to acts of goodneſs and virtue,

in order to promote their present felicity and future happiness; should it eventually prove conducive to those great and important objects, it will be an ample reward for the labour that has attended its prosecution, and afford lively sensations of joy and pleasure, to the reader's and the public's most

Obedient,

Humble

Servant,

THE AUTHOR.

New-York, Sept. 12, 1791.

ERRATA.

Page 3, line 25, for 411, read 511.
—— 31 —— 11 for Sept. read Oct. 19.
—— 32 —— 11 for Oct. 6, Peace proclaimed in 1782, read 1783.
—— 33 —— 9 read Peace proclaimed between Great-Britain, Holland and America.
—— 60 —— 31 for proceſſion, read preceſſion.
—— 93 —— — for 39 read 93.
—— 176 —— 10 for colume, read column.
—— 187 —— 7 for twenty millions, read fifty.
—— 232 —— 7 for live wou'd, read live I wou'd.
—— 269 —— 24 for are inclined, read is inclined.
—— 398 —— 18 for inimentum, read Linimentum.
—— 486 —— 1 for 6, read page 486.
—— 602 —— 1 for at, read as.
—— — —— 15 eraſe out "clean animals that had."
—— 609 —— 12 for a thing is, read a thing which is.
—— 618 —— 25 for 1789, read 1790.

The author was informed in England, that the Legiſlatures in the United American ſtates, north of Maryland, had ſet all the negroes free; but has been informed ſince his arrival in New-York, that they are not yet wholly freed in ſome of thoſe governments. Vid. page, 252. And he has not found any Swedenborghers in this city. Vid. p. 558.

Direction to the book-binder.

Let the figure of the ſolar ſyſtem face the 90th page.

New-York, Sept. 12, 1791.

By a late publication in the New-York Daily Advertiſer, it appears that the number of the inhabitants of the United States are by eſtimation as follows: and alſo that they have a right to ſend the annexed number of members to Congreſs.

	Inhabitants.	Members.
*Vermont,	85,000	2
New-Hampſhire,	141,885	4
Maſſachuſetts,	475,327	15
Rhode-Iſland,	68,825	2
Connecticut,	237,946	7
New-York,	340,120	11
New-Jerſey,	184,139	5
Pennſylvania,	434,373	14
Delaware,	59,094	1
Maryland,	319,728	9
Virginia,	821,287	23
North-Carolina,	393,751	11
*South-Carolina,	240,000	6
Georgia,	82,548	2
*South-weſtern territory,	30,000	1
*North-weſtern-tetritory,	5,000	0
Total,	3,919,023	113

The ſtates marked thus * have their numbers mentioned only by conjecture: The inhabitants of the others have been lately computed. 96,540, of thoſe in Maſſachuſetts belong to the province of Main: and 73,677, of thoſe in Virginia, to Kentuckey.

It appears by this account, that the inhabitants of the ſtates have been much augmented of late, as their numbers are much larger than they were a few years ago. Vid. p. 70.

New-York, Sept. 12, 1791.

By a late publication in the New-York Daily Gazetteer, it appears that the number of the inhabitants of the United States are by estimation as follows, and also they have a right to send the annexed number of Members to Congress:

Vermont,	85,000	2
New-Hampshire,	141,885	3
Massachusetts,	475,327	11
Rhode-Island,	68,825	2
Connecticut,	237,946	7
New-York,	340,120	11
New-Jersey,	179,570	5
Pennsylvania,	434,373	13
Delaware,	55,540	1
Maryland,	278,514	8
Virginia,	630,560	19
North-Carolina,	353,523	11
South-Carolina,	249,073	8
Georgia,	82,548	3
South-western territory,	35,000	1
North-western territory,	5,000	1
Total,	3,929,214	120

The Danes (many of them have their Family name changed only by corruption in the pronunciation of the others have been entirely corrupted, &c.&c. of their Malachy's belong to the province of Ulster: one 75,000, of them in Virginia, or Kentucky.

It appears by this account that the inhabitants of the States have been much augmented of late, as their numbers are much larger than they were a few years ago. Vid. p. 70.

THE

AMERICAN ORACLE.

CHAPTER I.

Of CHRONOLOGY—*with Tables of remarkable Æras and Events, from the Creation to the Year* 1790.

AS *aſtronomers* begin their computations at certain fixed points in the heavens, called æpochas, or radical places; ſo *hiſtorians* begin their reckonings from certain fixed points of time, called æras, or radixes of time; as that of the Creation, Noah's Flood, &c. as in the ſubſequent Tables.

	Anno Mundi
The creation of the world - - -	0
Noah's flood - - - -	1656
The birth of Abraham - -	1948
Sodom and Gomorrah deſtroyed -	2107
The departure of the Iſraelites out of Egypt	2452
Their entrance into Canaan - -	2492
Saul, the firſt King of Iſrael, began to reign	2909
Solomon's temple began - -	2932
The deſtruction of Samaria - -	3226
An angel deſtroys 184,000 of the Aſſyrians	3294
Babyloniſh captivity - -	3349

	Anno Mundi
Solomon's temple destroyed - -	3360
The beginning of Daniel's 70 weeks	3492
Death of Alexander the Great -	3626
Restoration of the Jews - -	3784
Correction of the Calendar by Julius Cæsar	3905
Herod began to reign in Judea -	3949
	Anno Domini
The reputed æra of the birth of Christ	0
He disputes with the doctors in the temple	12
Is baptised by John in the Wilderness -	27
And crucified by the Jews - -	33
Stephen is stoned to death - -	34
St. Paul is converted - -	36
St. Matthew writes his Gospel -	39
The followers of Christ first called Christians	40
Claudius Cæsar's expedition into Britain	43
St. Mark writes his Gospel - -	44
London founded by the Romans -	49
The council of the apostles at Jerusalem	52
St. Luke writes his Gospel - -	55
St. Paul sent in bonds to Rome, preacheth, and writes his epistles - -	62
The acts of the apostles written -	63
The Christians persecuted at Rome -	64
St. Peter and St. Paul put to death -	67
Titus takes Jerusalem; 1,100,000 Jews perish; 97,000 taken prisoners - -	70
A plague kills 10,000 persons at Rome	78
The Philosophers expelled Rome by Domitian	83
St. John, the evangelist, wrote his Revelation	96
Writes his Gospel - -	97
The Jews murder 200,000 Greeks and Romans - - -	115

Anno Domini

The Jews all baniſhed out of Judea; 580,000 deſtroyed by the Romans - 135
Juſtin writes his firſt Apology for the Chriſtians 139
Ptolomicus Geographus lived - 140
Galenicus Medicus lived - - 143
Arrianus Hiſtoricus lived - - 145
Antoninus Philoſophus lived - 161
Oppianus Poeta - - - 217
Purgatory invented - - - 250
Silk firſt brought from India to Europe 274
Conſtantine the Great began to reign 306
Cardinals firſt began - - 308
The Chriſtian Religion tolerated by Conſtantine - - - - 313
The firſt general council at Nice - 325
St. Martin lived - - - 363
Bells invented by Biſhop Paulinus, of Campagnia - - - - 400
Rome taken by Alerie, king of the Viſi-Goths 410
The Romans evacuate Britain - - 426
Socrates, an hiſtorian, lived - - - 435
Chriſtianity introduced into Britain by the Romans - - - 477
The Chriſtian Religion introduced in France 496
The doctrine of purgatory introduced 411
Dionyſius, a monk, introduces the computing of time by the Chriſtian æra - 516
The manufacturing of ſilk introduced in Europe - - - 551
A terrible plague continues near 50 years all over Europe, Aſia, and Africa - 557
Latin ceaſes to be ſpoke in Italy - 580
Auguſtin, a monk (with 40 more) comes into England - - - 596

	Anno Domini
The power of the popes begin -	606
Mahomet dies, aged 64 - -	634
Jeruſalem is taken by the Saracens -	637
Alexandria in Egypt taken by ditto, and the grand library burnt - -	640
Glaſs invented in England, by Benalt, a monk	664
The Saracens conquer Spain -	713
The computing of years from the birth of Chriſt firſt uſed in hiſtory -	748
A plague deſtroys 34,000 perſons in England	772
Charlemagne, K. of France, gave the preſent names to the winds and months	800
Alfred the Great divides England into counties, compoſes a body of laws, erects county courts, and founds the univerſity at Oxford	896
The univerſity at Cambridge founded	915
A plague deſtroys 40,000 people in Scotland	954
The coronation oath firſt uſed in England, and juries firſt inſtituted -	979
Figures in arithmetic brought into Europe from Arabia, letters having been uſed in their room - -	991
Paper, made of cotton rags, uſed -	1000
The Turks take Jeruſalem from the Saracens	1065
Muſical notes invented - -	1070
Juſtices of the peace firſt appointed in England - - -	1076
The tower of London built - -	1080
The order of Knight Templars inſtituted	1118
The canon law collected by Gratian, a monk of Bologna - -	1151
London bridge firſt built of ſtone -	1160

Paper

	Anno Domini
Paper firſt made of linen rags -	1170
Glaſs windows began to be uſed in private houſes in England - -	1189
Conjunction of the ſun, moon, and all the planets, in Libra. Sept. -	1186
Dieu et Mon-droit firſt uſed as a motto	1194
Chimnies firſt made, and ſirnames firſt uſed, in England - -	1200
Aſtronomy firſt ſtudied by the Moors	1201
London firſt incorporated into a city, with a Mayor, &c. - -	1208
Magna Charta ſigned by King John; and the Court of Common Pleas eſtabliſhed	1215
Aſtronomical tables conſtructed by Alonſo, King of Caſtile - -	1253
Commons firſt ſummoned to Parliament in England - - -	1264
Mariners' compaſs invented, or improved, by Givia of Naples - -	1302
Gold firſt coined in Chriſtendom -	1320
The firſt comet whoſe courſe is deſcribed with exactneſs - - -	1337
The French loſe 400 veſſels, and 30,000 ſeamen, in a ſea-fight with the Engliſh	1340
Gun-powder and guns invented, oil-painting firſt uſed, and the Herald's College inſtituted - - - -	1348
Ninety-thouſand people die of a plague in Germany - -	1348
Knights of the Garter inſtituted in England; and a plague deſtroys near nine-tenths of the people in Britain	1349

	Anno Domini
Coals firſt brought to London -	1357
A ſhower of hail kills 1000 men, and 6000 horſes, in England - -	1359
A dreadful plague in England -	1361
57,374 people die of a plague in England	1362
Windſor Caſtle built - -	1386
A terrible plague and famine in England; and cards invented in France for the King's amuſement - -	1391
Weſtminſter Abbey re-built -	1399
Guild-hall, in London, built -	1410
The univerſity of St. Andrews, in Scotland, founded - -	1411
Pumps firſt invented - -	1425
Printing invented in Holland - -	1440
100,000 people deſtroyed by an inundation in Holland - -	1446
The univerſity at Glaſgow, in Scotland, founded - - -	1454
Engraving and etching on copper invented	1460
The univerſity of Aberdeen, in Scotland, founded - -	1477
Firſt ſtanding army in England eſtabliſhed	1483
Maps and ſea-charts firſt brought into England - -	1489
The ſtudy of the Greek language introduced in England - -	1491
The Spaniſh inquiſition; — 15,000 Jews driven out of Spain - -	1492
America diſcovered by Columbus	1492
Algebra firſt known in Europe -	1494

South

	Anno Domini
South America diſcovered by Americus Veſpuſius - -	1497
North America diſcovered by Sebaſtian Cabot, about - -	1498
Thirty thouſand perſons die of a plague in London - - -	1499
Shillings firſt coined in England -	1505
Columbus died, aged 59 -	1506
Gardening introduced into England, from the Netherlands; and half of the people die of a plague in Britain	1509
Martin Luther began the Reformation	1517
The Pope gives the title of Defender of the Faith to the King of England	1520
Cannon began to be uſed in ſhips -	1539
Pins firſt uſed in England, in the room of ſkewers; and ſilk ſtockings firſt worn by the King of France -	1543
Council of Trent begins -	1545
Firſt law in England eſtabliſhing the intereſt of money - -	1546
Books of aſtronomy and geography deſtroyed, as infected with magic, in England - -	1552
The Reformation compleated in Scotland by John Knox; and ſilk ſtockings firſt worn in England by Q. Elizabeth	1561
Knives firſt made in England -	1563
The Royal Exchange in London built	1569
Thirty thouſand necromancers in France; and a great maſſacre of the Proteſtants at Paris - - - -	1572

	Anno Domini
The Dutch in Holland revolt from the Spaniſh government - -	1579
Eaſt India company incorporated	1579
Sir Francis Drake, the firſt Engliſh circumnavigator, returns from his voyage round the world - -	1580
New Style introduced in Italy by Pope Gregory - - -	1582
Tobacco firſt brought from Virginia into England; and Newfoundland ſettled by the Engliſh - - -	1583
Q. Elizabeth beheads Mary Q. of Scots, after 18 years impriſonment -	1587
Coaches introduced into England	1589
A band of penſioners inſtituted in England	1590
Trinity College, in Dublin, founded	1591
Watches firſt brought into England from Germany - -	1597
Theory of the Tides firſt given by Keplar	1598
Decimal arithmetic invented at Burges	1602
England and Scotland unite under the name of Great Britain - -	1603
30,578 perſons died of the plague in London	1604
Powder plot diſcovered at Weſtminſter	1605
Oaths of allegiance firſt adminiſtered in England; and Canada ſettled by the French - -	1606
Virginia ſettled - -	1607
New York, the Jerſies, and Pennſylvania, ſettled by the Dutch and Swedes; and Galileo diſcovers four of the ſatellites of Saturn - -	1608

Anno Domini

Six hundred wizards condemned, and moſt of them burnt, in France - 1609
Jupiter's moons firſt diſcovered by Galileo 1610
Baronets firſt created in England; and 200,000 perſons die of the plague in Conſtantinople - - 1611
Logarithms invented by Napier, a Scotchman; and Sir Hugh Middleton brings the New River to London, from Ware 1614
Harvey confirms the circulation of the blood 1619
The broad ſilk manufacture from raw ſilk, introduced into England; and negroes firſt imported into Virginia 1620
Nova Scotia ſettled by the Scotch; and New Plymouth, in New England, ſettled by Puritans - - 1621
Firſt neat cattle imported to America 1624
The iſland of Barbadoes ſettled by the Engliſh; and 35,417 people die of the plague in London - - 1625
Maſſachuſetts ſettled - - - 1628
New Hampſhire ſettled - - 1629
Boſton built - - - 1630
Maryland ſettled - - 1631
Died of a plague at Lions in France, 60,000 people; and Maryland given to Lord Baltimore - - 1632
Huygens diſcovers Saturn's ring; and Providence, in Rhode Iſland, built 1634
Connecticut ſettled; and regular poſts eſtabliſhed from London to Scotland, Ireland, &c. - - - 1635

	Anno Domini
Rhode Iſland ſettled - - -	1638
Newport built - - -	1639
Forty thouſand Engliſh Proteſtants maſſacred by the Iriſh - -	1640
Sir Iſaac Newton born - -	1643
Electricity, the firſt idea of it, given by Ottoguericke - -	1647
K. Charles I. beheaded, aged 49 -	1649
Cromwell aſſumes the protectorſhip	1654
Huygens diſcovers the fifth moon of Saturn; and Admiral Penn takes Jamaica from the Spaniards -	1655
Cromwell dies - - -	1658
K. Charles II. reſtored - -	1660
The Royal Society eſtabliſhed at London	1662
Carolinas planted - - -	1663
The Dutch and Swediſh ſettlements in North America conquered by the Engliſh	1664
68,000 perſons die of a plague in London	1665
Great fire in London; and tea firſt uſed in England - -	1666
Peace of Breda - -	1667
Peace of Aix la-Chapelle -	1668
Peace of Nimeguen; and Habeas Corpus act paſſed - - -	1672
49,487 people die of a plague in Vienna	1679
A great comet appeared from Nov. 3, to March 9; and the true orbits of comets demonſtrated by Doetſel -	1680
Philadelphia founded - -	1682

Bayonets

Anno Domini

Bayonets firſt uſed by the French—Bank of England eſtabliſhed—and, the firſt public lottery drawn - - 1693
Stamp duties inſtituted in England 1694
Peace of Ryſwick - - - 1696
Darien, in America, ſettled by the Scotch 1699
Pruſſia erected into a kingdom; and, Society eſtabliſhed for the propagation of the goſpel in foreign parts - 1701
Gibraltar taken from the Spaniards; and Court of the Exchequer inſtituted in England - - - 1704
Dr. Benj. Franklin born Feb.; and a treaty of union between England and Scotland 1706
A new mountain riſes out of the ſea in Turkey, in Europe called *Thera*; and the firſt Britiſh parliament - 1707
Minorca taken from the Spaniards; and Sardinia erected into a kingdom 1708
St. Paul's church re-built by Sir Chriſtoph. Wren, in 37 years - - 1710
The peace of Utrecht, whereby Newfoundland, Nova Scotia, New Britain, and Hudſon's Bay, were yielded to Great Britain, and Gibraltar and Minorca were alſo confirmed to the Britiſh crown 1713
Aurora Borealis firſt ſeen - 1715
A rebellion in Scotland in favour of the Pretender - - 1715
An act paſſed for ſeptennial parliaments 1716
Lombes, at Darby, erects a ſilk throwing machine, containing 26,586 wheels, all of

Anno Domini

of which take up one-eighth of a mile, and are moved by one water wheel: In 24 hours it works 318,504,960 yards of Organzine ſilk thread - 1719

Died of a plague, at Marſeilles, 18,000 perſons - - 1720

Inoculation firſt tried on criminals, with ſucceſs; and Sir Iſaac Newton dies, aged 84 nearly - - 1727

Georgia, in North America, ſettled; and Gen. Waſhington born Feb. 11. 1732

Died of a plague at Meſſina, in Sicily, 50,000 perſons - - - 1743

Commod. Anſon returns from his voyage round the world - - 1744

A rebellion in Scotland, projected by the French; and 6000 Americans, with aſſiſtance from England, take Cape Breton from the French - 1745

Electric ſhock diſcovered at Leyden, by Cuneus - - - - 1746

The peace of Aix-la-Chapelle - 1748

Weſtminſter bridge, after 12 years labour, finiſhed: (it coſt 389,000l.) - 1750

The Antiquarian Society at London incorporated - - - 1751

Sea water made freſh by experiment 1752

Old ſtyle ceaſes, Sep. 3. - - 1752

The Britiſh Muſeum erected; and a Society of Arts, Manufactures, and Commerce, inſtituted in London - - 1753

A. D. 1754.

A. D. 1754.

The Britiſh colonies in North America being almoſt ſurrounded by French, Spaniards, and Savages; and the French having augmented their armies, and made encroachments upon the Britiſh ſettlements, by erecting forts on the banks of the river Ohio, to which place Col. Waſhington, at the head of 4000 men, marches; builds a fort, which, on being demanded by a ſmall party of French, they are taken priſoners. The Governor of Canada attacks the fort; and Waſhington, on being overpowered with numbers, capitulates, ſurrenders, and marches towards Virginia. Many of the Engliſh are plundered and murdered by the Indians. From hence a war broke out between England and France.

1755.

The Engliſh take from the French two ſhips, 600 ſoldiers, with their officers, and 5000 crowns, off the banks of Newfoundland.

Two thouſand men from New England take Nova Scotia, and diſarm 15,000 neutral French and Indians.

Gen. Braddock defeated by the French and Indians, near Fort du Queſne

Gen. Johnſon defeats the French at Fort Edward, and takes their commander, Baron de Dieſkau, priſoner

Gen. Johnſon is created a Baronet, and the parliment gives him 5000l. for his good ſervices.

Gerith, near Bombay, taken by the Engliſh.

A. D. 1756.

A. D. 1756.

The French land 18,000 troops on the iſland of Minorca. Admiral Byng's cowardice. Fort St. Philip, and Fort St. Oſwego, taken by the French. Marine Society eſtabliſhed in London. Parliament reſolves to augment the land army from 35,000 to 49,749 effective men; and the ſeamen to 55,000, including 11,419 marines; and to raiſe 8,350,325l. to defray the charges of the war, &c.

That the electric fluid would emit ſparks, diſcovered

1757.

Admiral Byng ſhot. The Duke of Cumberland goes to Hanover; has ſundry battles with the French: Reſigns, and Prince Ferdinand ſucceeds him—who obtains ſeveral victories over the Gallic troops, and recovers a number of places that had been in their poſſeſſion. The Iſle of Aix taken from the French. The French take and demoliſh Fort William Henry. Buſbudgia, in Bengal, with ſundry other places, are taken by the Engliſh. The Nabob's army is defeated: he is impriſoned, and put to death.

Admiral Watſon dies. Parliament ſettles the ſupplies, which amount to 10,486,452l.

1758.

Several French veſſels are taken by the Engliſh near Carthagena. The Prince George, of 80 guns, commanded by Rear-Admiral Broderick, on a paſſage to the Mediterranean, accidentally takes fire, and burns till ſhe ſinks; The admiral, with about 300 men, make their eſcape

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eſcape to land; and 500 periſh. Lord Anſon and Sir Edward Hawke ſail to St. Malo. The Britiſh troops, under the command of the Duke of Marlborough, take poſſeſſion, and burn a French fleet, conſiſting of 2 men of war, 33 privateers, and above 70 ſail of merchant ſhips.

The Engliſh fleet and army leave St. Malo, and take poſſeſſion of Cherburgh, where they deſtroy the famous baſon, harbour and ſluice, in that place. They leave Cherburgh, go to St. Briac, near St. Malo, and deſtroy about 15 ſmall veſſels. On re-embarking, the French fall on them, and kill and take about 1000 men. Gen. Drury and Sir John Armitage were among the ſlain.

Fort Louis and the town of Senegal taken by the Engliſh. Goree taken from the French by Commodore Keppel.

Fifty thouſand Engliſh troops in America. Gen. Amherſt and Admiral Boſcawen take Cape Breton. The Iſland of St. John, in the Gulph of St. Lawrence, taken from the French by the Engliſh, under the command of Lieutenant-Colonel Lord Rollo. Gen. Abercrombie repulſed at Ticonderoga—where Lord Howe is ſlain.

Fort Frontinac taken from the French and Indians, by Col. Bradſtreet: He deſtroys nine armed veſſels belonging to the enemy.

Brigadier-General Forbes takes Fort du Queſne from the French.

The

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The Engliſh demoliſh a fort in Grand Ana Bay, in Martinico, and take four privateers from the French.

Prince Ferdinand, with the allied army, obtains great victories over the French in the Hanoverian dominions.

The Duke of Marlborough dies. Parliament grants 12,761,310l. 19s. 5d. to ſupport the war.

1759.

The French and the Pretender meditate to invade England.

Admiral Rodney bombards Havre, and burns the ſtores intended for the invaſion. The French abandon the town.

Admiral Boſcawen cannonades the French at Toulon. Afterwards he takes two French men of war, and deſtroys two more, near Gibraltar.

Sir Edward Hawke blocks up the French fleet in the harbour of Breſt, but is driven from thence by a ſtorm. The French purſue, and are defeated by having a number of their ſhips deſtroyed by Sir Edward, which renders their intention of invading England abortive.

Guadaloupe taken by the Engliſh, commanded by Gen. Hopſon and Barrington, with the iſlands Deſeada, Los Santos, and Marigalante, in the Weſt Indies. The French in Canada induce the ſavages to commit the moſt horrid barbarities upon the ſubjects of New England. The Engliſh make peace with fifteen Indian nations. Gen. Amherſt takes Ticonderago and Crown Point.

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Point. Sir William Johnſon takes Niagara. Gen. Wolfe killed, Sept. 12. Quebec taken, Sept. 18. Col. Ford obtained a complete victory over the French near Maſulipatam. Col. Maitland takes the town and caſtle of Suart. Vice-Admiral Pocock fights with a French fleet, and becomes maſter of the Indian coaſt. A Dutch Commodore refuſing to let Captain Wilſon paſs, the Captain reinforces Col. Coote on the coaſt of Coromandel, defeats the French, and takes four of the Commodore's ſhips; and alſo took Fort Wandewaſh. Theſe victories were in the Eaſt Indies.

Minden, in Hanover, taken from the French by Prince Ferdinand.

Munſter taken by Gen. Imhoff. Many more ſkirmiſhes happened in that country that year, in which the Engliſh and allied armies were victorious.

Parliament raiſes 16,130,561l. 9s. 8d. for defraying the charges of the war.

1760.

The French take Carrickfergus in Ireland, which they leave ſuddenly: are overtaken near the Iſle of Man, by Capt. Elliot, Capt. Logie, and Capt. Clement. A ſmart engagement enſues, in which the French ſquadron are taken, and their Commander, M. de Thurot, is ſlain.

The Cherokee Indians on the back of North Carolina (inſtigated by the French) break the peace, and plunder and maſſacre many of the Britiſh ſubjects.

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The Governor of North Carolina makes peace with them; but as ſoon as he had returned home, they attempted to ſurpriſe Fort George, killed all the Engliſh traders in their country, and maſſacred forty of the defenceleſs inhabitants.

Gen. Amherſt ſends Col. Montgomery with 1200 men, who chaſtiſed the Cherokees by deſtroying every village and houſe in the lower nation, putting great numbers to death, and bringing 40 women and children as priſoners to Fort George. Afterwards they made another excurſion in the middle ſettlements, deſtroying all before them with fire and ſword. The Indians, in revenge, attacked Fort London; and, after granting a capitulation, maſſacred the greateſt part of the garriſon.

M. de Levis, with 12,000 men, beſieges Quebec. And Gen. Murray, with 3000 men, (Ap. 28.) marched out near three miles from the city, loſt 1000 men in killed and wounded, and was obliged to retreat back to the city. On the arrival of an Engliſh fleet from Halifax, under the command of Lord Colville, the ſiege was raiſed, and the French fled to Montreal—where three Engliſh armies met afterwards; and Vaudreuil, the French Governor, finding himſelf entirely incloſed by the three armies, ſurrendered the garriſon, with all Canada, Sept. 8, on condition that the French ſhould enjoy their religion and effects; and that thoſe of the

French

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French that choſe to return to France, ſhould be tranſported thither.

In the courſe of the ſummer, Captain Byron, with three ſhips, deſtroyed the French ſettlements in the Bay of Chaleur, where he took 3 frigates and 19 ſmaller veſſels.

This year the walls of Cape Breton were demoliſhed, and the implements of war, artillery and ammunition carried to Halifax, by order of his Britannic Majeſty.

Arcot, Parmacoil, Alumparva, Carical, and Pondicherry, in the Eaſt Indies, taken by the Engliſh.

The French army in Germany conſiſted of near 130,000 men, and the Engliſh of 25,000: the allied fell very ſhort of the French army in numbers, but they exceeded in the quality of the troops. Many heavy battles were fought, and many victories obtained over the enemy.

King George II. dies, and King George III. begins to reign. The Commons grant upwards of 19,000,000l. for the ſervice of the current year.

A. D. 1761.

Prince Ferdinand, with the allied army, obtains a victory over the French, who loſe 5000 men in battle.

In another battle Prince Henry, brother to the hereditary Prince, is mortally wounded. Many ſkirmiſhes enſue.

Major Hector Monro takes Mahie, in the Eaſt Indies.

A. D. 1761.

Shah Zadda, a prince of the Mogul empire, joins the French in the Eaſt Indies, but is routed by the Engliſh troops, who take all their artillery, part of their baggage, and a number of French officers.

Lord Rollo, and Sir James Douglas, take the iſland of Dominique from the French in the Weſt Indies.

Numbers of veſſels are taken from the French this year, in different parts of the world.

The iſland of Belleiſle taken from the French by Admiral Keppel, and Major-General Hodgſon, June 7th.

The Commons ſettle the ſupplies, which amounted to 18,229,135l. 18s. 11½d.

The Spaniards declare war againſt Great Britain.

1762.

England declares war againſt Spain.

Peter III. Emperor of Ruſſia, is depoſed, impriſoned, and murdered.

American Philoſophical Society eſtabliſhed at Philadelphia.

The Engliſh take Martinico, with all the Caribbee iſlands in the Weſt Indies, from the French.

Havannah taken from the Spaniards by the Engliſh.

Manilla, in the Eaſt Indies, taken by the Engliſh from the Spaniards.

Sundry victories obtained over the French in Germany, by the Engliſh and the allied armies.

1763.

Peace eſtabliſhed between Great Britain, France, Spain, and Portugal; and Canada, Nova Scotia,

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tia, Eaſt and Weſt Florida, part of Louiſiana, Granada, St. Vincent, Dominica, and Tobago, are confirmed to the Britiſh empire.

1764.

Parliament grants 10,000l. to Mr. Harriſon for his diſcovery of longitude by his time-piece.

1765.

A Society of Artiſts incorporated in England.

Stamp act paſſed. The Americans oppoſe it. The merchants enter into a non-importation agreement.

Society of Arts, Manufactures and Commerce, inſtituted at New York, March 18.

Stamp act repealed.

April 21. A ſpot, or macula of the ſun, more than thrice as big as this earth, paſſes over the centre of his body.

1768.

Academy of Painting eſtabliſhed in London.

War declared between the Ruſſians and Turks.

Great diſturbances in America concerning duties laid by Parliament on glaſs, ſalt, &c.

The merchants agree, not to import ſuperfluities from England. The Boſtonians demoliſh the houſes of the cuſtom-houſe officers. Two regiments ſent from Ireland, to ſupport the civil power at Boſton.

The King acquaints the Parliament with the conduct of the Americans.

96 public edifices, 4048 houſes, and 1000 perſons, deſtroyed by a hurricane at the Havannah.

A. D. 1769.

The Boſtonians petition Parliament, praying that the revenue acts may be repealed.

The prayer of the petition not granted. Mention is made of the riots and tumults in Boſton, &c. and Parliament reſolves, that all acts made in the Colonies, which tended towards the throwing off the ſovereignty of the Britiſh Parliament, were illegal and unconſtitutional, and derogatory to the crown and dignity of his Majeſty, &c.

A comet appears, with a very long tail.

1770.

The King acquaints the Parliament with the diſtracted condition of America.

Some of the merchants in England petition Parliament, praying that the duties might be taken off of ſundry articles imported to America; their prayer is in part granted.

Mar. 5. Capt. Preſton, of the 29th regiment, with a number of his men, being ſurrounded and abuſed by a mob, the mob is fired upon, and five are killed; which action was afterwards called by the Americans, *the Boſton maſſacre.*

The King acquaints the Parliament with the condition of the Colonies in general, and the conduct of the Boſtonians in particular.

250,000 people die of the plague in Poland.

1771.

Dr. Solander, Mr. Banks, and Lieut. Cooke, return to England from a voyage round the world,

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world, having made ſeveral important diſcoveries in the South Seas.

1772.

The King of Sweden changes the conſtitution from ariſtocracy to a limited monarchy.

The Emperor of Germany, Empreſs of Ruſſia, and King of Pruſſia, ſtrip the King of Poland of a great part of his dominions, which they divide among themſelves, in violation of the moſt ſolemn treaties.

1773.

Capt. Phipps ſent to explore the north pole; but is ſtopped by the ice at lat. 81 deg. N.

The Jeſuits expelled the Pope's dominions.

The Eaſt India Company ſends their cargoes of tea to conſignees in America, Parliament having lowered the duty from 12 to 3d. per pound.

Dec. 16. A mob at Boſton deſtroys 342 cheſts, by throwing it into the ſea.

Died of a plague at Baſſora, in Perſia, 80,000 perſons.

1774.

Peace proclaimed between the Ruſſians and Turks.

The Americans deny that the Britiſh Parliament had a right to tax them.

Parliament paſſes an act for ſhutting up the port of Boſton, till ſatisfaction ſhould be made to the Eaſt India Company, &c.; and alſo another act, for regulating the government of the Maſſachuſetts Bay, and for ſending criminals to England to be tried, if juſtice could not be had in

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the Colonies. Alſo, an act was paſſed for the future government of Quebec, in which the Romiſh clergy were allowed the free exerciſe of their religion.

Gen. Gage arrives at Boſton with a fleet and army.

The port is ſhut up.

The Boſtonians enter into a ſolemn league and covenant, not to export or import any commodities to or from Great Britain, nor to have connection or trade with any one ſo doing, till all their rights and charters ſhould be reſtored to them.

Sept. 5. A Continental Congreſs meets at Philadelphia. The people in the Maſſachuſetts mob the King's counſellors and other friends of Government, who flee to his Majeſty's army for protection.

Committees of correſpondence are choſen; the courts of juſtice are ſtopped; and many of the military officers reſign their commiſſions in the Maſſachuſetts.

Gen. Gage ſeizes the provincial ſtores in the Maſſachuſetts, and fortifies the town of Boſton, in conſequence of the preparations for war in the colonies by the Americans.

The Repreſentatives, without the advice and conſent of the Governor and Council, proclaim a faſt. And,

Some of the clergy, refuſing to obey the proclamation, are treated as enemies to the country.

The millers not allowed to grind any grain for the friends of Government, nor the merchants and mechanics

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mechanics to have any correſpondence with them. The printers were forbid to print for the tories; and the people were not allowed to drink tea, nor the clergy to pray for the King.

The people conſtrained to ſign leagues and covenants; ſpend much time in making implements of war, and in running to trainings, town and committee meetings, county conventions, &c.

A proclamation iſſued in England to prevent the exportation of arms and ammunition to America.

The people in Rhode Iſland and New Hampſhire ſeize and carry off the cannon and other property belonging to the crown, which was depoſited in thoſe governments.

Minute-men, or men to be ready at a minute's warning to fight againſt the King's troops, choſen in the Maſſachuſetts.

A falſe report is ſpread, *viz.* that the King's troops had been from Boſton to Cambridge, and had, without any provocation, killed ſix innocent people there. Whereupon the militia was raiſed in the Maſſachuſetts, Connecticut, &c. and marched, in great multitudes, to take Boſton; but, on finding they had been miſinformed, returned back to their habitations.

1775.

April 19. The battle of Lexington.

May 10. Ticonderago taken from the Britiſh by Col. Ethan Allen.

May 14. Crown Point taken from the King's troops.

A. D. 1775.

May 25. Gen. Howe, Clinton, and Burgoyne, arrive at Boſton.

June 17. Battle at Bunker's Hill: Charleſtown burnt; Gen. Warren ſlain.

Aug. 23. The King iſſues a proclamation for the ſuppreſſion of ſedition and rebellion.

Oct. 18. The Britiſh fleet burns the town of Falmouth.

Dec. 10. Battle at Grave's Iſland in Virginia.

31. Gen. Montgomery ſlain at Quebec.

1776.

March 17. Boſton evacuated by the Britiſh.

May 6. The ſiege of Quebec is raiſed.

June 28. Battle at Sullivan's Iſland.

July 4. Independency declared by Congreſs at Philadelphia.

July 11. The battle at Gwin's Iſland.

Aug. 27. Long Iſland taken by the Britiſh.

Sept. 15. New-York taken by the Engliſh.

Nov. 18. Fort Lee abandoned by the Americans.

20. Fort Waſhington taken by the Britiſh and Germans.

Dec. 26. Heſſians taken at Trenton by the Americans.

1777.

Jan. 2. Battle at Princetown, in the Jerſies.

March 23. Stores deſtroyed at Peek's-kills by the Britiſh.

April 27. Danbury, in Connecticut, burnt by the Engliſh.

April 29. Gen. Wooſter killed.

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July 6. Ticonderago taken by the Britiſh.
18. Gen. Preſcott taken at Rhode Iſland by the Americans.
Aug. 16. Engliſh defeated at Bennington, in Vermont.
Aug. 28. Gen. Howe landed at the head of the Elk.
Sept. 11. Battle at Brandywine.
27. Philadelphia taken by Gen. Howe.
Oct. 4. Battle at German Town.
7. Battle at Stillwater.
9. Fort Montgomery taken by Sir Hen. Clinton.
15. Eſopus burnt by the Britiſh.
17. Gen. Burgoyne ſurrendered at Saratoga.
21. Red Bank, in Pennſylvania, attacked.
Nov. 15. Mud Iſland taken.

1778.

Feb. 6. An alliance made between France and the United States of America.
April 13. The Earl of Carliſle, W. Eden, Eſq. and Geo. Johnſton, Eſq. appointed Commiſſioners to reſtore peace to the Colonies: They arrive at Philadelphia—and Congreſs refuſes to treat with them, &c.
June 18. Philadelphia evacuated by the King's troops.
June 28. St. Pierre and Miquelon taken from the French by Admiral Montague.
—. Battle at Monmouth, in the Jerſies.
July 27. Sea-fight off Breſt, between Admiral Keppel and the French fleet.

July 27.

A. D. 1778.

July 27. Count d'Eſtaing arrived at Rhode Iſland.
Aug. 29. Battle at Rhode Iſland.
Sept. 7. Dominica taken from the Engliſh by the French.
Oct. 3. The Commiſſioners iſſue a manifeſto and proclamation for reſtoring peace in America.
Oct. 17. Pondicherry, in the Eaſt Indies, ſurrenders to the Engliſh.
Dec. 28. St. Lucia taken from the French by the Engliſh.

1779.

Jan. 4. Georgia ſurrendered to the Britiſh troops.
—. St. Vincents taken by the French.
July 3. Grenada taken by the French.
6. Adm. Byron and Count d'Eſtaing fight.
—. D'Eſtaing and Gen. Lincoln repulſed at Savannah in Georgia; and New Haven, in Connecticut, plundered by the Britiſh.
July 9. Fairfield, in Connecticut, burnt by the Engliſh.
July 12. Norfolk, in Connecticut, burnt by the King's troops.
July 16. Stony Point taken from the Britiſh by the Americans.
Aug. 14. Penobſcott taken by the Britiſh from the Americans.
Aug. 18. Paulus Hook taken from the Britiſh.
Oct. 10. Count d'Eſtaing repulſed at Georgia.
24. Omoa taken from the Spaniards.
25. New Port evacuated by the Britiſh.

A. D. 1780.

A. D. 1780.

Jan. 8. Admiral Rodney takes two ſail of Spaniſh ſhips.

Jan. 16. He takes and deſtroys ſeven Spaniſh ſhips of the line.

March 14. Mobille taken by the Spaniards.

April. Admiral Rodney fights in the Weſt Indies.

9. Weſt Florida ſurrenders to the King of Spain.

May 12. Sir Henry Clinton takes Charleſtown in South Carolina.

May 17. Admiral Rodney fights with the French fleet.

—. A great riot in London. The rioters demoliſh ſome Romiſh chapels, Newgate, the King's Bench and Fleet priſons, alſo ſundry private houſes and other edifices in London and Southwark. The rioters were at length ſuppreſſed by the military, and many of them tried and executed for felony.

May 19. A remarkable dark day in New England.

Aug. 8. Five Eaſt Indiamen and 50 merchant ſhips taken from the Engliſh by the combined fleets of France and Spain.

Aug. 16. Earl Cornwallis obtains a victory over Gen. Gates near Camden, South Carolina.

—. General Sumpter defeated by Col. Tarleton

Sept. 3. Henry Laurens, Eſq. who had been a preſident of Congreſs, taken by the Engliſh near Newfoundland.

Sept. 23.

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Sept. 23. Major André taken by the Americans as a ſpy.

Sept. 24. Gen. Arnold deſerts, and goes to New-York, where he is made a Brigadier-General in the royal ſervice.

Oct. 2. Major André hanged as a ſpy at Tappan.

4. Mr. Laurens committed to the Tower in London, on a charge of high treaſon.

10. Dreadful hurricanes in the Weſt Indies.

Dec. 20. Declaration of hoſtilities againſt Holland.

—. Tarleton and Morgan fight.

1781.

Jan. 6. The French repulſed at the iſland of Jerſey.

11. Admiral Hughes takes Trincomale on the iſland of Ceylon.

Feb. 3. St. Euſtatia taken by the Engliſh from the Dutch.

—. St. Martin's, Saba, St. Bartholomew, taken from the French by the Engliſh.

—. Demerary and Eſſequibo, on the Spaniſh main, taken from the Dutch by the Engliſh.

March 13. Dr. Herſchel diſcovers a new planet, called *Georgium Sidus*, or *Herſchel*.

March 15. Earl Cornwallis obtains a victory over Gen. Green, at Guildford-court-houſe, North Carolina.

Camden burnt by the Britiſh in South Carolina.

Norfolk, in Virginia, burnt by Gen. Arnold.

May 12. Negapatam taken.

June 2.

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June 2. Tobago taken by the French from the Engliſh.

Aug. 5. Admiral Parker fights with a Dutch fleet.

Sept. 6. New London, in Connecticut, burnt by Gen. Arnold.

—. Lieut. Colonel Tarleton defeated Sieur de Choiſe.

Sept. 7. French and Engliſh fight off Cheſapeak Bay.

Sept. 19. Lord Cornwallis ſurrenders to the French and Americans.

1782.

Sir Eyre Coote obtains a victory over Hyder Ally.

Jan. 14. Nevis taken by the French.

Feb. 13. St. Chriſtopher's taken from the Engliſh by the French.

Feb. 25. Minorca taken from the Engliſh by the Spaniards.

March 1. The Houſe of Commons addreſs the King againſt any further proſecution of the war in America; and reſolve, that all thoſe who ſhould adviſe, or by any means attempt the further proſecution thereof, ſhould be conſidered as enemies to his Majeſty and the Britiſh nation.

March 28. Holland acknowledges the independence of America.

April 12. Admiral Rodney obtains a victory over the French fleet commanded by C. de Graffe, in the Weſt Indies.

April 13. Admiral Hughes had a ſevere engagement with the French fleet near the iſland of Ceylon,

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Ceylon, in which a great number of men were loſt on both ſides.

May 8. The iſland of Bahama taken by the Spaniards from the Engliſh.

Aug. 29. The Royal George, of 110 guns, is overſet, and ſunk in the Engliſh Channel, and about 900 people periſh.

Sept. 13. Gen. Elliot defeats the combined fleets of France and Spain at Gibraltar.

Oct. 6. Peace proclaimed between Great Britain, France, and Spain.

Nov. 30. Proviſional articles of peace ſigned at Paris between Great Britain and the United States of America.

Dec. 20. Dr. STEARNS, having made calculations, publiſhes the firſt *Nautical Almanack* that ever was printed in America.

1783.

Jan. 20. Preliminary articles of peace between his Britannic Majeſty and the Kings of France and Spain ſigned at Verſailles.

April. An iſland riſes out of the ſea, near Iceland, iſſuing great quantities of fire from two of its eminences, like burning vulcanoes.

Sept. 3. The definitive treaty of peace between Great Britain, France, Spain, and the United States of America, ratified.

The Britiſh Fiſhing Society incorporated.

A. D. 1784.

Jan. 14. Congreſs ratifies the definitive treaty of peace between Great Britain and America.

Jan. 16.

A. D. 1784.

Jan. 16. Congreſs iſſues a proclamation, recommending and ſtrictly enjoining the citizens of the United States, to carry into effect every ſentence and clauſe of the definitive treaty.

March. A comet appears.

May 20. The definitive treaty of peace between Great Britain and Holland ſigned at Paris.

July. Peace proclaimed in Great Britian between Holland and America.

Sept. 15. Lunardi aſcends in an Air Balloon, the firſt attempt of the kind in England.

1786.

Auguſt 2. Margaret Nicholſon, a lunatic, attempts to ſtab the King of England with a knife, in conſequence of which ſhe is ſent to Bethlehem Hoſpital.

Sept. 19. A plan ſet forth in Great Britain for eſtabliſhing a Colony in Botany Bay, in New Holland. A commercial treaty is ſigned at Verſailles between England and France. An inſurrection in the Maſſachuſetts—The ſitting of many of the courts of juſtice is ſtopped by the inſurgents.

Congreſs recommends to the Legiſlative Aſſemblies of the United States, to repeal their laws, which had been ſuffered to exiſt and operate, that were repugnant to the definitive treaty of peace between Great Britain and America.

1787.

Jan. The inſurgents under the command of Gen. Shays, ſtill continue to impede the ſitting of the courts of juſtice. The Legiſlative Aſſem-

A. D. 1787.

bly raiſes an army, which was put under the command of Gen. Lincoln. Several ſkirmiſhes enſue, and ſome are killed on both ſides. The inſurgents deſert Gen. Shays. He flees with his Head Officers to Canada. Many of the inſurgents are afterwards tried for their lives. Some receive ſentence of death; but are all, with their General, afterwards pardoned.

The Maſſachuſetts, with ſundry other States, repeal their laws that were repugnant to the articles of the peace.

Some diſturbances in Holland, the male-contents deſire to abridge the Stadtholder's power. The public tranquillity is reſtored. The Legiſlative Aſſemblies in the United States of America ſend a Convention to Philadelphia, in order to amend the articles of confederation and perpetual union between the States. The Convention frames a new conſtitution, which they call the Federal Conſtitution. This makes a great diſturbance amongſt the citizens.

1788.

Jan. 17. Lord George Gordon having been found guilty of publiſhing two libels, one againſt the Queen of France, and the other againſt the criminal juriſprudence of England, is ſentenced to be impriſoned in Newgate three years, then to pay a fine of £500, and find ſecurity for his good behaviour for fourteen years.

26. Dr. STEARNS formed a new *Hypotheſis* upon the cauſe of the *Aurora Borealis*.

Jan. 31.

A. D. 1788.

Jan. 31. Died at Rome, Prince Charles Lewis Caſſimir Stuart, called the Pretender, aged 67 years and 2 months.

June 13. A provincial treaty of defenſive alliance is ſigned by the miniſters plenipotentiary of their Majeſties the Kings of Great Britain and Pruſſia.

1789.

April 23. His Britannic Majeſty, having been indiſpoſed from Oct. 1788 till March 1789, appoints a thankſgiving, and viſits St. Paul's.

24. General illumination on the King's recovery. Dr. Herſchel diſcovers the 6th and 7th moons of Saturn. Great inſurrections in Paris, occaſioned by the people's paying enormous taxes, from which the nobility and clergy were exempt. The people carry their point in ſubjecting thoſe claſſes to taxation, and contend for a right of repreſentation, as forming one of the three eſtates, according to the conſtitution of Great Britain. They meet with oppoſition, but carry their point at laſt.

1790.

Jan. 26. Dr. STEARNS receives a letter from Dr. HERSCHEL, informing that Mrs. HERSCHEL, ſiſter to the Doctor, diſcovered a comet on the 7th inſtant.

April 6. A violent ſhock of an earthquake at Oczakow, which deſtroyed a church, and did other damages.

May 27. London Bridge ſtruck with lightning.

A. D. 1790.

April 20. Doctor Benjamin Franklin died, aged 84 years and 3 months.

July 14. Democratical *Conſtitution eſtabliſhed in France.*

Dec. 23. A terrible ſtorm of thunder, lightning, wind, hail, and rain; which did much damage in London and elſewhere, by overturning chimneys, houſes, trees, &c.

Chronologiſts frequently contradict one another—hence their works are not always to be depended on. The Author has taken much pains to collect the beſt accounts that could poſſibly be obtained; and therefore flatters himſelf, that the preceding Tables are the moſt accurate of any that have hitherto been publiſhed.

CHAP.

CHAP. II.

A Deſcription of the AUTHOR'S *Philoſophical Contemplations, Aſtronomical, and other Labours.*

IN profound ſtudies I take much delight,
At high noon day, and in the ſilent night;
Of wond'rous things I aim to find the cauſe,
By diving into Nature's ſecret laws.
Sometimes I ſit, and with myſelf converſe,
And contemplate upon the univerſe;
Sometimes, when on my downy bed I lie,
My wand'ring thoughts to diſtant objects fly:
Sometimes they're fixed on the ſplendid ſun,
To ſee the planets round his body run,
In that poſition there to ſtand and gaze,
Whilſt rambling comets in the ſyſtem blaze.
Then, from the ſun, my thoughts do take a flight
To globes extended far beyond our ſight:
There I ſurvey the works that DEUS made,
When He the baſis of great heaven laid;
When He rais'd up the arches of the ſky,
And fram'd a num'rous train of worlds on high,
Where ſuns, no doubt, do ſhine with ſplendid light,
And planets roll, adorn'd with day and night,
Where beings do perhaps their voices raiſe,
In celebrating their Creator's praiſe!

When I've thus view'd the ſyſtems to and fro,
My wand'ring thoughts deſcend to objects low:
From upper worlds moſt rapidly they fall,
To view God's works upon this earthly ball.

Here I gaze at the lands, the rocks, the ſeas,
The num'rous plants, and diff'rent kinds of trees;
The birds, the beaſts, the fiſhes—all that be
In air, in earth, and the extenſive ſea.
I view the people all, both great and ſmall,
In kingdoms, towns, and cities large and tall;
See their religion, cuſtoms, and their laws,
Their times of peace, and times of bloody wars.
The elements I view of ev'ry kind,
And all their qualities do try to find.
And whilſt I'm thinking of great Nature's laws,
I aſk myſelf, what truly is the cauſe
Why clouds ariſe? Why ſtorms of rain and ſnow?
Why fogs appear, and boiſt'rous winds do blow?
Why tides ſpring up, and billows roar aloud?
And the grum thunder rumbles thro' the cloud?
Why flaming lightning often zigzag flies?
And the mock ſuns appear within the ſkies?
The meteors why? and why the northern light?
And rainbow comes ſo frequent in our ſight?
Why other things ſo often do appear
Within the earth's extenſive atmoſphere?
Why inundations do ſo oft ariſe,
And drown the people in a great ſurpriſe?
Why mountains burn? and why the hills do ſhake?
What thing it is that cauſes an earthquake?
Why cities ſink? and other places fall
So low that they cannot be ſeen at all?
Why iſlands riſe, that ne'er were ſeen before?
And hills ſpring up upon the rocky ſhore?
Why ſtones fall downwards? Why the ſmokes ariſe
Towards the regions of the upper ſkies?
Why the hot flame the fuel doth conſume,
And where its gone when turned into fume?
What makes the ſprings, in diff'rent kinds of ſoil,
With a great heat from day to day to boil?
Why water-ſpouts and whirlwinds do ariſe,
And raiſe things up towards the azure ſkies?
Why the broad ſea, with a fine brilliant light,
Doth look ſo fiery in the darkeſt night?

Why

Why the bright ſun upon an axis turns,
And, unconſum'd, his body ever burns?
Why the ALMIGHTY gives its heat ſuch force,
Orders its motion, and directs its courſe?
Why planets do in wond'rous order run,
From age to age, around the ſplendid ſun?
Why this great globe, with unfelt motion, rolls
Upon an axis pointing to the poles?
What makes the cold, and what doth make the heat?
And the proud waves againſt the mountains beat?
What brings the ſpring, the ſummer, and the fall,
And winter time, upon this earthly ball?
What makes the day? and what doth make the night?
And what divides the darkneſs from the light?
What makes the compaſs vary from the poles?
And why the variation weſtward rolls?
Why northern lights weren't ſeen upon the ſtage,
Until men liv'd within the preſent age?

When in the morn I'm weary of my bed,
I riſe and write what came into my head,
What I upon great Nature's laws had thought,
What in the night had to my mind been brought:
But ſtill I find my thoughts, without controul,
Upon a number of great objects roll.
I go to work, and, with a ſteady mind,
The planets places in their orbits find.
For times not come I find their longitude,
And compute their diurnal latitude;
Their right aſcenſions, declinations too;
Their riſings, ſettings—all point out I do.
Eclipſes, tranſits, occultations, I
Foretel how ſoon they will be drawing nigh.
In obſcurations of the ſhining ſun,
I find the courſe that the dark moon will run;
Where her penumbra firſt will ſtrike the globe,
And bring thereon a doleful mourning robe!
How far her ſhadow really will expand,
And obumbrate the ſea and ſolid land.
I always aim to be exceeding ſure
To tell how long eclipſes will endure:

When they'll begin, likewiſe how large they'll be;
And when their end the gazing world may ſee!

In the defections of the rambling moon,
(Which happens oft, at ev'ning, morn, and noon)
I find the magnitude of the earth's ſhade,
And how therein the Lunar globe will wade:
Whether one part, or whether there'll be all
The rays of Sol hid from the Lunar ball:
From theſe things only 'tis that I conclude,
What will be the eclipſe's magnitude.
The beſt of rules obſerve I always do,
In occultations and in tranſits too.

Whilſt at my ſtudies I am ſitting ſtill,
I'm often call'd to viſit perſons ill:
Then I haſte where malignant ills do rage,
And againſt them with all my ſkill engage.
Sometimes I bleed, ſometimes I puke and purge;
I uſe ſuch things as Nature ſeems to urge.
I am not fond of getting worldly pelf,
But uſe the poor juſt as I do myſelf.
The beſt of med'cines any one can chooſe,
I to my patients orders give to uſe;
And to the ſick cannot for conſcience' ſake,
Give things myſelf would not incline to take.
Unleſs I know of what a pill is made,
To give or take it always I'm afraid.
The uſe of *noſtrums* therefore I deſpiſe,
With the whole train of quackiſh villanies.
I've often thought, that people, when they're ill,
Do take ſuch things till they themſelves do kill.
A man well ſkilled in the medic art,
Can have no need to act a knaviſh part:
Out of good ſimples, compounds he can make,
Fit for his patients and himſelf to take:
If he his med'cines doth incorporate,
He'll know their ſtrength, and how they'll operate.
He'll eaſe the pained, and he'll give relief
To men and women overwhelm'd with grief;
As all of them may ſtand a chance to find
Themſelves reliev'd according to their mind;

To

To get quite freed from all their racking pain,
Have health reſtor'd, and ſtrength return'd again.
But if he knows not what he gives, I'm ſure,
He nor his patients can't expect a cure.
Let all therefore who to phyſicians run,
The knaviſh quacks and all their *noſtrums* ſhun;
Leſt they, like fools, do ſpend their caſh in vain,
Take the *ſlow poiſon*, and at laſt be ſlain.

Theſe are the ways that I, by night and day,
Do exerciſe as time rolls faſt away.
The field I find, in which I did engage,
Is large enough for mortals on the ſtage;
Who being weak, and very ſhort in ſight,
Know not ſome things hid by the GOD *of Might!*

Compoſed, A. D. 1790.

CHAP.

CHAP. III.

A Definition of ASTRONOMY—*Where it is ſuppoſed it was firſt ſtudied—The Names and Ages of ſome eminent Aſtronomers — Obſervations on thoſe of Great Britain, France, and America—The great Utility of the Science—Qualifications neceſſary for thoſe who calculate the Motions of the Celeſtial Luminaries.*

ASTRONOMY is a ſcience that teaches the diſtances, magnitudes, orders and motions of the heavenly bodies; and was a myſtery hidden from ages and generations, until it was made known in theſe modern centuries, by the ſtudies, obſervations, and improvements of ingenious men. —It has been ſaid, that the Moors firſt ſtudied the ſcience, and that it was brought into Europe in 1201. — Some have alſo ſuppoſed, that the true theory of Aſtronomy took its riſe in Egypt or Babylon, and that it was firſt taught by Pythagoras in Greece, who died 497 years before Chriſt.

After a long and dark night of oblivion, the Pythagorian Syſtem was revived by Copernicus of Thorn in Pruſſia, who died A. D. 1543, aged 70.—John Kepler, born at Wittenberg in Upper Saxony, in Germany, made a great progreſs in Aſtronomy;

Aſtronomy; he died 1630, aged 59.—Afterwards the celebrated Sir Iſaac Newton, who was knighted by Queen Ann when he was about 62 years of age, brought the knowledge of this ſcience to a high degree of perfection; he died 1727, aged 84.—We have alſo had ſeveral other eminent Aſtronomers in Great Britain beſides Sir Iſaac; as Mr. Flamſtead, who died 1718, aged 73.—Dr. Halley, who died 1742, aged 86.—Mr. Whiſton, who died 1752, aged 85.—Dr. Bradly, who died 1762.—Mr. Mayor, famous for conſtructing Aſtronomical Tables, who died 1762.—A Mr. Robert Heath, who has been dead upwards of 20 years, if I miſtake not; and a Mr. Ferguſſon, who died 1776.—At preſent there is the Rev. Dr. Maſkelyne, Aſtronomer Royal, and the celebrated Dr. Herſchel, who has made great diſcoveries and improvements in the divine ſcience, as he has diſcovered one primary planet, *viz.* Georgium Sidus, and four ſecondary ſatellites, which had not been ſeen before. Two of theſe ſatellites revolve round Georgium Sidus, and the other two round Saturn.—The Doctor has alſo diſcovered, that the ring of Saturn has a rotation in about ten hours, as he informed me.

Dr. Herſchel diſcovered the Georgium planet with a teleſcope about ſix feet in length; and he has lately conſtructed another, which is about 40 feet long, and 4 feet 9 inches in diameter. This is the largeſt I ever ſaw, and I believe of any in the world. It has enabled him to make the other diſcoveries.

I perceived

I perceived in July 1790, when I was at the Royal Obſervatory in Paris, that the French Aſtronomers are very accurate in taking obſervations.

I have not learnt that the American Aſtronomers have ever made any great diſcoveries or improvements in taking aſtronomical obſervations; but they have ſome eminent Calculators, as the celebrated Mr. Weſt, Profeſſor of Mathematics and Aſtronomy in the Univerſity in Rhode-Iſland Government—Dr. Low, and a Mr. George, of the Maſſachuſetts—Mr. Strong, Dr. Perry, and Mr. Dabol, of Connecticut: but I am not acquainted with the Calculators in the Southern States.—I obſerved at Philadelphia, in 1783, that a number of Almanacks were publiſhed from one calculation, under fictitious names, as Father Abraham, Poor Will, Poor Richard, &c.; but could not learn who was the author. The ſame calculation was alſo publiſhed in the Jerſies, under ſome other name.

At New-York, an Almanack was publiſhed under the name of a Mr. Hutchens, who had been dead ſome years.

An Almanack was publiſhed in French, in Canada, when I was there, ſuppoſed to be calculated by a Mathematician in the Seminary in Quebec; but it was very deficient, as neither the Moon's place, riſing, ſouthing, or ſetting, was given.

I have made and publiſhed Aſtronomical Calculations for ſeveral Governments in America,

for

for upwards of twenty years, annually calculated for ſix meridians and latitudes; and have not heard of any Aſtronomer that ever attempted to calculate and publiſh a Nautical Almanack, in that quarter, but myſelf; and I only undertook the taſk once. The greatneſs of the work, and the commotions that exiſted on account of the war, obliged me to diſcontinue it.

There are two gentlemen in America, who are ſaid to be very accurate in the conſtruction of Orreries, *viz.* a Mr. Rittenhouſe of Philadelphia, and a Mr. Pope of Boſton:—The former conſtructed one that exceeded every thing of the like kind in the world; and ſince that, the latter conſtructed another, that exceeds the former: He made a preſent of it to the Preſident, Profeſſors, &c. of the Univerſity at Cambridge, in the Commonwealth of Maſſachuſetts; and the General Aſſembly of that Republic gave him three hundred guineas (as he informed me, when I ſaw him in London) in conſequence of his performance, and donation.

No ſcience can be of greater utility to the human race than Aſtronomy; for, by it, we not only point out the longitudes and latitudes of the planets, with their riſings, ſouthings, ſettings, eclipſes, tranſits, and occultations—but determine many important things in chronology, navigation, and ſurveying. Hence, if we had no knowledge in this ſcience, we ſhould not be able to find the limits of kingdoms and ſtates, nor to ſteer a veſſel over the great oceans to the remote parts of the globe, which would hinder our growing rich by trade and commerce, and prevent our receiving many of thoſe foreign productions that

are

are neceſſary for the preſervation of life; ſuch as clothing, food, phyſic, &c.

There are but a few Aſtronomers on the globe, owing no doubt to the deepneſs of the myſtery, and the extenſiveneſs of the labour in attaining the knowledge neceſſary for a Profeſſor of the divine ſcience.

An Aſtronomer muſt be well ſkilled in every branch of the mathematics, *viz.* arithmetic, algebra, geometry, trigonometry, navigation, ſurveying, &c.; and if he undertakes to make calculations for one year only, he will find that he enters into a large field of buſineſs, and into a puzzling, perplexing, and intricate work, that will be attended with the expence of much time and hard ſtudy. A calculation that is made for one year, never will anſwer for another, by reaſon of the unſteadineſs of the motions of the luminaries.

There are three kinds of Aſtronomers, if I may be allowed to uſe the expreſſion, *viz.* One that marks the places of the ſtars, planets, and comets, by taking aſtronomical obſervations—One that points out their places for times to come, by aſtronomical calculations — And another that repreſents their motions, by making mathematical machines, as orreries, artificial globes, and planetariums.

CHAP.

CHAP. IV.

Of the Motions of the Primary and Secondary Planets —Cauſes of the Eclipſes, Tranſits, and Occultations —The Signs of the Zodiac, and the Number of the Northern and Southern Conſtellations—Aſtronomical Characters—Superſtition of the Ancients.

WE may reaſonably ſuppoſe, that there are innumerable ſyſtems of worlds in the boundleſs expanſion of the univerſe; and that the great fixed ſtars are ſuns to ſyſtems of planets and comets. But be this as it may, it has been demonſtrated by aſtronomical obſervations,

I. That the ſun is placed nearly in the centre of our ſyſtem, and that it has no circular motion, only a rotation upon its axis.

II. That ſeven primary, and fourteen ſecondary planets, complete their revolutions round the ſun, in their determinate or appointed times.

III. That the primaries are moved with an annual and a diurnal motion.

IV. That the ſecondaries revolve around their primaries, as the primaries do round the ſun; and both are moved round the ſun together, as the primaries complete their revolutions.

V. That ſome primaries have ſecondaries, and others have none.

VI. That our earth is a primary planet, and completes her revolution round the ſun between the orbits of Mars and Venus.

VII. That Mars, Venus, and Mercury, have no moons or ſecondary planets; and that the earth has

one, Jupiter four, Saturn ſeven, and Georgium Sidus two.

VIII. That the orbits of the planets are not circular, but elliptical, and have different degrees of excentricity.

IX. That they are moved by a projectile force in their orbits, and a central force towards the ſun.

X. That their motions are regular and uniform, and the areas they deſcribe around the ſun are proportionate to the times of their periods.

XI. That the ſquares of the times which the planets ſpend in revolving round the ſun, are always proportionable to the cubes of their greateſt diſtance from him. Hence the longer their orbits are, the longer will their revolutions be.

XII. That they all revolve through the twelve ſigns of the zodiac, which is a zone that is 18 deg. and 30 min. in breadth, in the middle of which is the ecliptic, or ſun's path. Hence they make an angle with the ecliptic of 9 deg. and 15. min. called their north and ſouth latitude.

XIII. That they revolve according to the order of the ſigns of the zodiac, but appear at different times to be direct, ſtationary, and retrograde; which phænomena ariſe from their various ſituations, and the velocity of the motion of the earth.

XIV. That when a primary planet is in that part of its orbit that is neareſt to the ſun, it is at its perihelion; but when it is moſt remote, it is at its aphelion.

XV. That when a ſecondary planet is in that part of its orbit that is neareſt to its primary, it is at its perigeon; but when it is moſt remote, it is at its apogeon.

XVI. That

XVI. That the annual motion of the earth cauſes the ſpring, ſummer, autumn, and winter; but the diurnal cauſes the day and the night.

XVII. That an eclipſe of the ſun is cauſed by the moon's coming between the ſun and the earth at the time of her change; and that of the moon by her falling into the earth's ſhadow at the time of her full, occaſioned by the earth's coming between the ſun and the moon.

XVIII. That the ſun and moon cannot be eclipſed, only on the full and change days; and not always then, becauſe ſhe makes an angle with the ecliptic of 5 deg. and 18 min. and therefore often paſſes to the north or ſouth of the ſun at the time of her change, and to the north or ſouth of the earth's ſhadow at the time of her full, without cauſing any eclipſe.

XIX. That there cannot be more than ſeven, nor leſs than two eclipſes in a year; but more happens of the ſun than of the moon, by reaſon of his being greater than the earth's ſhadow.

XX. That the points where the moon's orbit interſects the ecliptic, are called her nodes; but they run retrograde, or contrary to the orders of the ſigns of the zodiac. Her menſtrual motion, however, is always direct, or from weſt to eaſt: and when ſhe is three ſigns to the eaſtward of the ſun, ſhe is at her firſt quarter; when ſix ſigns, at her full; and when three ſigns weſt of the ſun, at her laſt quarter.

XXI. That the moon is very unſteady in her motion, as her velocity is ſometimes ſwift, and ſometimes ſlow; the figure of her orbit being neither a circle, nor an ellipſis, nor a parabola.

XXII. That ſhe always moves with the ſame face towards the earth, and her diurnal motion is equal to her menſtrual motion, *viz.* 27 days and 8 hours. She has no light of her own, but ſhines with a borrowed light reflected from the ſun. Hence ſhe appears horned, halved, gibbous and round, according to her poſition in her orbit, and diſtance from the ſun.

XXIII. That no planet, in all our ſyſtem, is half ſo difficult to trace as the moon, and a calculation made for one year will not anſwer for another.—Hence Aſtronomers are obliged to make new calculations, as they do for the other planets, every year.

XXIV. Sometimes Venus and Mercury paſs betwixt us and the ſun, and appear like a dark ſpot on his diſk. Theſe eclipſes are called tranſits, and there are more of Mercury than of Venus.

XXV. That the ſatellites of Georgium Sidus, Saturn and Jupiter, are eaſy to trace; and the quantities, durations, reſt and affections of their eclipſes (called occultations) are eaſily found by reaſon of the ſteadineſs of their motions.

XXVI. That Mercury is ſituated the neareſt to the ſun of any planet in our ſyſtem, and revolves between the ſun and Venus. Venus revolves between the orbit of Mercury and that of the earth; the earth between Venus and Mars; Mars between the earth and Jupiter; Jupiter between Mars and Saturn; Saturn between Jupiter and Georgium Sidus; and Georgium Sidus between Saturn and the ſphere of the fixed ſtars, which are placed at an immenſe

immenſe diſtance from our ſyſtem. *Vide* the figure of the ſolar ſyſtem.

XXVII. That the ſigns of the zodiac are called conſtellations, each of which contains 30 degrees, each degree 60 minutes, and each minute 60 ſeconds, &c.

XXVIII. That north of the zodiac there are 36 conſtellations, and ſouth of it 32; which numbers being added to thoſe of the zodiac, make 80, and includes the whole canopy of the heavens.

XXIX. That the concave ſurface of the ſtarry heavens, with the different conſtellations, are marked on the convex ſurface of an artificial celeſtial globe; and they are repreſented by the forms of various animals, whoſe names and figures are printed on the paper that covers the globe.

XXX. That the names of the northern conſtellations are,

LATIN NAMES.	ENGLISH NAMES.
Andromeda	Andromeda
Aquila cum Antineo	The eagle with Antionus
Anſer cum Vulpecula	The gooſe with the fox
Auriga	The waggoner
Bootes	Bootes
Caſſiopeia	The lady in her chair
Camelopardus	The cameleopard
Cepheus	Cephus
Coma Berenices	Berenices hair
Corona Septen.	The northern crown
Cygnus Gallina	The ſwan hen
Delphinus	The dolphin
Draco	The dragon

LATIN NAMES.	ENGLISH NAMES.
Equuleus Equiſectio	The horſe's head
Hercules	Hercules kneeling
Leo minor	The leſſer lion
Lacerta	The lizard
Lynx	The lynx
Lyra	The harp
Perſeus, C. M.	The Perſeus
Pegaſus Equus	The flying horſe
Sagitta	The arrow
Serpens Ophiuchi	Serpentarius
Scutum	The ſhield
Serpentarius, or Ophiuchus	The ſerpent
Triangulum	The triangle
Urſa major	The great bear
Urſa minor	The little bear
Canes Vanatici	The dog greyhound.

XXXI. The characters and names of the conſtellations of the zodiac are,

	LATIN NAMES.	ENGLISH NAMES.	
♈	Aries	The ram	Head
♉	Taurus	The bull	Neck
♊	Gemini	The twins	Arms
♋	Cancer	The crab	Breaſt
♌	Leo	The lion	Heart
♍	Virgo	The virgin	Belly
♎	Libra	The balance	Reins
♏	Scorpio	The ſcorpion	Secrets
♐	Sagittarius	The archer	Thighs
♑	Capricornus	The goat	Knees
♒	Aquarius	The water-bearer	Legs
♓	Piſces	The fiſhes	Feet

XXXII. That

XXXII. That the ſouthern conſtellations are,

LATIN NAMES.	ENGLISH NAMES.
Ara cum thuribulo	The altar with a cenſer
Argo vel navis	The ſhip
Apus	The bird of paradiſe
Canis major	The greater dog
Canis minor	The leſſer dog
Cetus	The whale
Centaurus cum lupe	The centaur with the wolf
Chameliontis	A chameleon
Columba Noahi	Noah's dove
Corona Auſtralis	The ſouthern crown
Corvus	The crow
Crater	The cup
Eridanus fluvius	The river
Grus	The crane
Hydrus	The water-adder
Lepus	The hare
Muſca	The fly
Monoſceres	The unicorn
Orion	Orion
Pavo	The peacock
Phœnix	The phenix
Piſcis volans	The flying fiſh
Robur Carolinæ	The royal oak
Sextans	The ſextant
Toncan	The American gooſe
Triangulum Auſtr.	The ſouthern triangle
Dorado Xiphias	The ſword fiſh

XXXIII. That various accounts have been given by different Aſtronomers, of the number of the fixed

ſtars. Mr. Flamſtead, in the year 1689, ſuppoſed their number to be 3001, *viz.* 1511 in the northern hemiſphere, 943 in the zodiac, and 547 in the ſouthern hemiſphere; and diſtinguiſhed them by ſeven degrees of magnitude. But ſcarce 1000 can be diſcerned in Great Britain by the naked eye in a clear night. The ſtars, however, are ſo numerous, that no man on earth can number them; for by looking into Dr. Herſchel's teleſcope, thouſands and tens of thouſands appear beyond thoſe mentioned by Mr. Flamſtead.

XXXIV. That beſides the aſtronomical characters annexed to the names of the ſigns of the zodiac, there are others which repreſent the ſtars, planets, and aſpects:

	LATIN NAMES.	ENGLISH.	GENDERS.
*	Stella	A ſtar	Feminine
☉	Sol	The ſun	Maſculine
☿	Mercurius	Mercury	Maſculine
♀	Venus	Venus	Feminine
⊖	Terra	The earth	Feminine
♂	Mars	Mars	Maſculine
♃	Jovis	Jupiter	Maſculine
♄	Saturnus	Saturn	Maſculine
G	Georgium Sidus	George's ſtar	Maſculine
☽	Luna	The moon	Feminine
7	*'s Pleiades	The ſeven ſtars	

XXXV. That when a planet is moving northward, it is in its aſcending node, called the dragon's head, and marked ☊; and when it is moving ſouthward, it is in its deſcending node, called the dragon's

dragon's tail, and is marked ☊. But when it interſects the ecliptic, it is in the node itſelf.

XXXVI. That the following characters repreſent the aſpects, as when two planets are in the ſame degree, they are in conjunction, marked ☌

When	30	degrees apart,	Semiſextile	⚺
——	60	—— ——	Sextile	⚹
——	54	—— ——	Quintile	Q
——	90	—— ——	Quartile	□
——	120	—— ——	Trine	△
——	144	—— ——	Biquintile	Bq
——	150	—— ——	Quincunx	Vc
——	180	—— ——	Oppoſition	☍

XXXVII. That the Ancients ſuppoſed the moon had a great influence upon the human body, as ſhe paſſed through the ſigns of the zodiac; that when ſhe was in *Aries*, ſhe governed the head; when in *Taurus*, the neck, &c.; and that it was unſafe to let blood in the head, or any other part, whilſt ſhe remained in that ſign which governed the part. But I have found by my own experience and obſervation, in bleeding patients, that this hypotheſis was founded altogether upon ſuperſtition.

This opinion was undoubtedly inſtilled into the Ancients by the Aſtrologers, who formerly impoſed upon the ignorant world, by pretending that they could foretel future events by the motions of the heavenly bodies. But we ſtill retain the ancient cuſtom of repreſenting the moon's place in the ſigns of the zodiac, by ſaying in our almanacks, *head*, *neck*, *arms*, &c.

CHAP. V.

A Deſcription of the Ecliptic, Poles, Equinoctial, Zenith, Nadir, Spheres, Latitude, Longitudes, Horizon, Hemiſpheres, Meridians, Amplitude, Right Aſcenſion, Equinoxes, Azimuths, Cycles, Parallaxes, Tropics, Polar Circles, Solſtices, Cardinal Points, Seaſons of the Year, Zones, Semi-diurnal Arcs, Length of the Days, Square Miles on the Surface of the Globe, Number of Inhabitants, &c.

THE ecliptic is the path in the heavens which the ſun appears to deſcribe as the earth paſſes through the twelve ſigns of the zodiac. Aries, Taurus, Gemini, Cancer, Leo, and Virgo, are northern ſigns; Libra, Scorpio, Sagittarius, Capricornus, Aquarius, and Piſces, are ſouthern.

2. The poles of the world are two fixed points in the heavens, diametrically oppoſite to each other, and a right line ſuppoſed to be drawn from each, is called the axis of the earth, about which the diurnal motion is performed.

3. The equinoctial line is a great circle, that ſurrounds the globe, at right angles, with the axis of the earth: it is 90 degrees from each pole, and interſects the ecliptic at the beginning of Aries and Libra. The length of the equinoctial is equal to the circumference of the globe, which is 360 degrees, or 21,600 geographic miles.

A de-

A degree of the equator, and one of the ecliptic, and other great circles of the ſphere, is ſuppoſed to be equal, though the latter is much longer than the former. The equator is divided into 24 equal parts, each containing 15 degrees, which are equal to an hour of time, as each degree is equal to four minutes.

4. The diameter of the earth from pole to pole is not quite ſo large as it is through the equinoctial, which is evident by her ſhadow in an eclipſe of the moon; but the difference of the polar and equatorial diameters, ariſes, it is probable, from the expanſion of the globe by the heat of the ſun in the torrid zone, and the condenſation of the ſame by the cold in the polar regions.

5. The zenith is the point directly over our heads; the nadir is the point directly under our feet; and when the ſun, the moon, or a ſtar is in the zenith, it is verticle.

6. There are three ſpheres, *viz.* a right, oblique, and parallel; as,

Firſt, When a ſpectator is on the equator, he is in a right ſphere; the poles of the world are in the horizon, and the equinoctial paſſes through the zenith and nadir. The equator, with its parallels, *viz.* the tropics and polar circles, make right angles with the horizon. The days and nights are equal as the ſun, moon, and ſtars; are twelve hours above, and twelve below the horizon, at the times of the equinoxes.

Secondly,

Secondly, When a ſpectator is between the equator and the poles, he is in an oblique ſphere. One pole is elevated leſs than 90 degrees above the horizon, and the other is depreſſed as many below.—The luminaries aſcend and deſcend obliquely, tho' ſome of them that are ſituated near the poles never aſcend at all. The days and nights are of different lengths, according to the different degrees of latitude, and the ſeaſons of the year. The diurnal and nocturnal arcs of the ſun vary in all parallels of latitude.

Thirdly, When a ſpectator is at either of the poles, he is in a parallel ſphere. One pole is in the zenith, and the other is in the nadir. The equinoctial is parallel to the horizon; and all the parallels of the equator, *viz.* the tropics and polar circles, are alſo parallel to the horizon. The ſun is half the year above, and half the year under the horizon, and the days and nights are ſix months in length. When our ſummer ſolſtice happens, the ſun at the north pole is 23 deg. 28 min. above the horizon; when the equinoxes happen, he is in the horizon; and when he is declined 18 degrees to the ſouth, the twilight ends at the north pole, which remains in utter darkneſs till the ſun returns within 18 degrees of the equator again, unleſs it is illuminated by the moon, the Aurora Borealis, &c.

7. The latitude of a place is its diſtance north or ſouth of the equinoctial, and is always equal to the height of the pole above the horizon: hence, if a ſpectator is 20 degrees from the equator, that will

will be the elevation of the pole, and, of courſe, the latitude of the place.

8. The longitude of a place is its diſtance from ſome firſt meridian, eaſt or weſt, as that of the Royal Obſervatory at Greenwich; and every ſtep we move, north or ſouth, brings us into another latitude; and every ſtep we travel, eaſt or weſt, brings us into another longitude, and alſo into another meridian.

9. The horizon is a great circle of the ſphere which divides the upper hemiſphere, or half compaſs of the heavens, which is viſible from the lower, which is inviſible.

10. There are two horizons, *viz.* the ſenſible and the rational. The ſenſible is that which appears to a ſpectator placed on the ſurface of the globe; and the rational, that which would appear to him, if he was placed at, and could ſee from the centre. This horizon would divide the firmament into two equal parts, called the real and true horizon.

11. The hemiſphere is that part of the heavens which is above the horizon; it is alſo one half of the globe, and likewiſe all the firmament that is below the horizon.

12. A meridian is a great circle paſſing through the poles of the world, and the zenith and nadir croſſing the equinoctial at right angles, dividing the hemiſphere into two equal parts, called the eaſtern and weſtern hemiſpheres; and when the ſun comes to the meridian, it is noon.

13. The

13. The meridian altitude of the ſun, moon, or ſtar, is its height above the horizon when it is on the meridian.

14. The ſemi-diurnal arc of the ſun, moon, or ſtar, is half the time it is above the horizon; and the ſemi-nocturnal arc is half of the time that it is below the ſame.

15. The amplitude of the ſun, moon, or ſtar, is an arch of the horizon between their riſing or ſetting, and the eaſtern or weſtern points thereof.

16. The aſcenſional difference of the ſun, moon, or ſtar, is the difference between the right and oblique aſcenſion and deſcenſion, or the time they riſe and ſet before and after ſix o'clock.

17. The longitude of the ſun, planet, or ſtar, is its diſtance from the vernal equinox, which is moveable about 50 ſeconds *per annum*, or its diſtance from the firſt ſtar of Aries, which is immoveable.

18. The latitude of a planet is its diſtance from the ecliptic, as was before obſerved.

19. The heliocentric longitude of a planet is its place as ſeen from the ſun, and the geocentric as ſeen from the earth. The ſame is to be obſerved with regard to the heliocentric and geocentric latitude.

20. The right aſcenſion of the ſun, moon, or ſtar, are the degrees of the equinoctial, reckoned from the beginning of Aries, coming to the meridian with a ſtar or planet, or to any hour circle at right angles with the equinoctial.

21. The proceſſion of the equinoxes are the going back of the equinoctial points 50 ſeconds in a year,

year, cauſed by the earth's ſpheroidal figure in its diurnal motion; it will complete a revolution in about 25,920 years. This revolution is called the Platonic Year, at the period of which the Ancients ſuppoſed that every thing will come round in the ſame order they then were.

22. When a ſtar riſes as the ſun ſets, it riſes achronically; when it ſets with the ſun, it ſets achronically. When it riſes with the ſun, it riſes coſmically; when it ſets as the ſun riſes, it ſets coſmically. When a ſtar emerges from the ſun's light weſtward, ſo as to be ſeen in the morning before the ſun riſes, it riſes heliacally; when a planet emerges eaſtward from the rays of the ſun, ſo as to be viſible in the evening, it ſets heliacally.

23. The anomaly of a planet is its angular diſtance from its aphelion.

24. Azimuth circles are verticle circles paſſing through the zenith and nadir.

25. The cycle of the ſun is a revolution of 28 years, and that of the moon a revolution of 19 years.

26. The elongation of a planet is its angular diſtance from the ſun as ſeen from the earth. The greateſt elongation of Mercury is 28 deg. 21 min. 8 ſec. and that of Venus 47 deg. 38 min. 35 ſec. —Venus and Mercury are called inferior planets; Georgium Sidus, Saturn, Jupiter, &c. ſuperior.

27. The parallax of a planet is the difference between its true place, as ſeen from the earth's centre, and its apparent place as ſeen from the earth's ſurface.

28. The

28. The parallax of the annual orb is the angle the earth would appear under to the eye, at each planet, to be elongated from the ſun; being greateſt and leaſt at the extreme poſitions.

29. There are two ſpheres beſides thoſe already mentioned, *viz.* the celeſtial ſphere and the terreſtrial. The terreſtrial circles and poles of the earth are ſuppoſed to be extended to the heavens. Hence, if two ſtars ſhould be found in thoſe points, they would be called pole ſtars; but as there are not any viſible ſtars in theſe points, the neareſt to them are called by that name.

30. The ecliptic hath poles and circles; theſe poles make an angle with thoſe of the earth of 23 deg. 28 min. The circles of the ecliptic are called the circles of the celeſtial longitude; and thoſe parallel to the ecliptic, circles of the celeſtial latitude.

31. If the axis of the earth was perpendicular to the plane of the ecliptic, there would be no declination from the equinoctial points; the equator, the tropics, polar circles, and the poles, upon that ſide of the globe next the ſun, would always be illuminated, and the days and nights equal. But the axis being inclined 23 deg. 28 min. to the plane of the ecliptic, and keeping obliquely and in a parallel poſition to itſelf through each revolution, produces the ſpring, ſummer, autumn and winter, and the inequality of the days and nights.

32. The angle that the equinoctial makes with the ecliptic, is called the ſun's declination, and is equal to 23 deg. 28 min. It is half the year north, and half the year ſouth of the equinox. From the

20th of March to the 23d of September, his declination is north; and from thence to the 20th of March, it is ſouth. When the ſun enters Aries, the vernal equinox happens; when he enters Cancer, the ſummer ſolſtice happens; when he enters Libra, the autumnal equinox happens; and when he enters Capricorn, the winter ſolſtice happens. The equinoxes and ſolſtices are called the four cardinal points. The ſummer ſolſtice happens about the 21ſt of June; then the days are the longeſt in the northern latitudes, but ſhorteſt in the ſouthern. The winter ſolſtice happens Dec. 21. then the days are the ſhorteſt in the northern, but longeſt in the ſouthern latitudes: but the days and nights are of an equal length at the times of the equinoxes. The ſummer half-year is about nine days longer than the winter half-year, owing to the earth's being nearer to the ſun in the winter than ſhe is in the ſummer, which quickens the rapidity of her motion; for the nearer a planet or comet is to the ſun, the ſwifter will their motions be: therefore the earth paſſes quicker through the ſouthern than the northern ſigns; for it is about nine days longer in going from the vernal equinox to the autumnal, than it is in going from the latter to the former. Let us compute—

SUMMER HALF-YEAR.	Days.	WINTER HALF-YEAR.	Days.
March	11	Sept.	7
April	30	Oct.	31
May	31	Nov.	30
June	30	Dec.	31
July	31	Jan.	31
Aug.	31	Feb.	28
Sept.	23	March	20
	187		178
Subtract	178		
Difference	9 days.		

Quod erat demonſtrandum.

33. The terraqueous globe is divided into five parts called zones, *viz.* one torrid, two temperate, and two frigid zones. The torrid is 46 deg. 56 min. in breadth, and limits the ſun's greateſt declination north and ſouth. It is bounded northerly on the tropic of Cancer, and ſoutherly on the tropic of Capricorn. In this zone the heat is very extreme, and the ſun riſes and ſets 46 deg. 56 min. farther to the ſouth at the time of the winter ſolſtice, than it doth at the time of the ſummer ſolſtice. The moon riſes and ſets 57 deg. 32 min. and the other planets 65 deg. 26 min. further to the ſouth at ſome times, than they do when they are at their greateſt declination northerly. And as the declination of the moon and planets is often greater than that of the ſun, by reaſon of their latitude from the ecliptic, their ſemi-diurnal and

and ſemi-nocturnal arcs are frequently longer than thoſe of the ſun. The ſun is always verticle in ſome part of the torrid zone, and he is always riſing and always ſetting in ſome parts of the globe.

The temperate zones are ſituated between the torrid and the frigid zones, and each of them are 43 deg. 4 min. in breadth.

The northern temperate zone is bounded by the arctic circle on the north, and by the tropic of Cancer on the ſouth. The ſouthern temperate zone is bounded northerly by the tropic of Capricorn, and ſoutherly by the antarctic circle. In theſe zones the heat is not ſo extreme as it is in the torrid, nor the cold as it is in the frigid zones.

The frigid zones are each of them 23 deg. 28 min. broad. The northerly one is bounded north by the north pole, and ſoutherly by the arctic circle. The ſoutherly frigid zone is bounded north by the antarctic circle, and ſoutherly by the ſouth pole.—The cold is very extreme in theſe zones.

34. When the ſun's declination is the greateſt northerly, his ſemi-diurnal arc at Philadelphia, or in the latitude 40 deg. north, is 7*h.* 29*m.*

When the moon's is the greateſt north, her ſemi-nocturnal arc is - 7— 53—

When the other planets are the greateſt north, &c. - - 8— 13—

The moon's ſemi-nocturnal arc is longer than the ſun's, by - - 0— 24—

Planets longer than, &c. - 0— 44—

	Deg.	Min.
The ſun's greateſt declination is	23	28
The moon's greateſt declination is	28	46
Jupiter's greateſt declination is	32	43
The moon's declination greater than the ſun's - - -	5	18
The planets declination is greater than the ſun's, by - - -	9	15

35. There is a conſiderable variation in the length of the days in the capital towns and cities in North America. At Quebec, at the time of the ſummer ſolſtice, the days are 15*h*. 50*m*. long

At Boſton -	15—	14—----
At New-York -	15—	2—----
At Philadelphia -	14—	58—----
At Charleſtown -	14—	16—----
Longer at Quebec than Boſton	0—	36—----
——— at ditto than New-York	0—	48—----
——— at ditto than Philadelphia	0—	52—----
——— at ditto than Charleſtown	1—	34—----

Deduct the length of the day from 24 hours, and the remainder will be the length of the night:

Thus— - -	24—	0—----
Length at Quebec -	15—	50—----
Length of the night -	8—	10—----

Aſtronomers do not agree about the lengths of the days at the above places; but I have conſtructed this

this calculation according to the direction given by a celebrated Royal Aſtronomer.

36. The terraqueous globe is compoſed of land and water, and near three quarters of its ſurface is ſuppoſed to be overwhelmed with the watery element.

There are four great continents, *viz.* Europe, Africa, Aſia, and America; and alſo the continents near the poles: the northern is called Terra Arctica, and the ſouthern Terra Antarctica.

There are five great oceans, *viz.* the Northern, the Pacific, Southern, Indian, and Atlantic.

The Northern Ocean flows along between the arctic continent and the northern parts of Europe, Aſia, and America.

The Pacific, which is about 11,000 miles from north to ſouth, and 10,000 from eaſt to weſt, waſhes the weſtern and north-weſtern ſhores of America, and the eaſtern and north-eaſtern ſhores of Aſia.

The Southern Ocean lies ſouthward of America and Africa, joins the Pacific Ocean to the ſouthward, and reaches ſome parts of the antarctic continent. Its extent is not yet known.

The Indian Ocean is bounded by Aſia on the north, extends to the Pacific on the eaſt, and to part of the ſouthern antarctic continent. It is between ſeven and eight thouſand miles from north to ſouth, and four thouſand from eaſt to weſt.

The Atlantic divides Europe and Africa from America, bounds on the Indian and Southern Oceans, and is about ſix thouſand miles from north

to ſouth, and three and four thouſand from eaſt to weſt.

Beſides oceans, there are ſeas, bays, gulphs, ſtraits, lakes, ponds, rivers, &c. on the ſurface of the globe; and beſides continents, there are iſlands, peninſulas, iſthmuses, promontories, capes or headlands, &c. though ſome of theſe join to the *terra firma*.

The

The Superficial Contents of the GLOBE *are eſtimated as follows:*

	Square miles.	ISLANDS.	Sq. miles.	ISLANDS.	Sq. m.
The Globe	199,512,595	Hiſpaniola	36,000	Skye	900
Seas and unknown Parts	160,522,026	Newfoundland	35,500	Lewi	880
The Habitable World	38,990,569	Ceylon	27,730	Funen	768
Europe	4,456,065	Ireland	27,457	Yvica	625
Aſia	10,768,823	Formoſa	17,000	Minorca	520
Africa	9,654,807	Anian	11,900	Rhodes	480
America	14,110,874	Gilolo	10,400	Cephalonia	420
Perſian Empire under Darius	1,650,000	Sicily	9,400	Amboyna	400
Roman Empire, in its utmoſt height	1,610,000	Timor	7,800	Orkney Pomona	324
Ruſſian	3,303,485	Sardinia	6,600	Scio	300
Chineſe	1,749,000	Cyprus	6,300	Martinico	260
Great Mogul	1,116,000	Jamaica	6,000	Lemnos	220
Turkiſh	960,057	Flores	6,000	Corfu	194
Preſent Perſian	800,000	Ceram	5,400	Providence	168
ISLANDS.		Breton	4,000	Man	160
Borneo	228,000	Scotora	3,600	Bornholm	160
Madagaſcar	168,000	Candia	3,220	Wight	150
Sumatra	129,000	Porto Rico	3,200	Malta	150
Japan	118,000	Corſica	1,520	Barbadoes	140
Great Britain	72,926	Zealand	1,935	Zant	120
Celebes	68,400	Majorca	1,400	Antigua	100
Manilla	58,500	St. Jago	1,400	St. Chriſtopher's	80
Iceland	46,000	Negropont	1,300	St. Helena	80
Terra del fuego	42,075	Teneriff	1,272	Guernſey	50
Mindinao	39,200	Gotland	1,000	Jerſey	43
Cuba	38,400	Madeira	950	Bermudas	40
Juva	38,250	St. Michael	920	Rhode	36

The number of inhabitants in the known world, according to the beſt computations, are eſtimated at 953 millions: Of which Europe contains 153; Aſia, 500; Africa, 150; and America, 150 millions.

The inhabitants of the United American States, according to an account publiſhed in the Maſſachuſett's Regiſter for the preſent year, 1790, are as follows: Viz.

States.	*Chief Towns.*	*Inhabitants.*
1. New Hampſhire	Portſmouth	102,000
2. Maſſachuſetts	Boſton	360,000
3. Connecticut	Hartford	202,000
4. Rhode-Iſland	New-Port	58,000
5. New-York	New-York	238,000
6. New-Jerſey	Trenton	138,000
7. Pennſylvania	Philadelphia	360,000
8. Delaware	Wilmington	37,000
9. Maryland	Baltimore	218,000
10. Virginia	Richmond	420,000
11. North Carolina	Newburn	200,000
12. South Carolina	Charleſtown	150,000
13. Georgia	Savannah	90,000
14. Vermont	Bennington	200,000
Total - - -		2,773,000

The inhabitants of Vermont were not mentioned in the Regiſter. I received the account by a news-paper.

Preſidents

Preſidents that have been choſen in the Continental Congreſs.

1. Peyton Randolph, Eſq.	Of Virginia
2. John Hancock, Eſq.	— Maſſachuſetts
3. Henry Laurens, Eſq.	— So. Carolina
4. John Jay, Eſq.	— New-York
5. Samuel Huntington, Eſq.	— Connecticut
6. John Hanſon, Eſq.	— Maryland
7. Elias Boudinot, Eſq.	— New-Jerſey
8. Thomas Mifflin, Eſq.	— Pennſylvania
9. Richard Henry Lee, Eſq.	— Virginia
10. Arthur St. Clair, Eſq.	— Pennſylvania
11. Cyrus Griffen, Eſq.	— Virginia
12. George Waſhington, Eſq.	— Virginia

CLIMATES.

37. There are 30 climates between the equator and each of the poles. In the firſt 24, the days increaſe by half-hours; but in the remaining ſix, between the polar circles and the poles, the days increaſe by months.

The following Table exhibits the northern and ſouthern boundaries of each climate, with their breadth, and the length of the days.

Clim.	Latitude.		Breadth.		Longeſt Day.	
	o	1	o	1	H.	M.
1	8	25	8	25	12	30
2	16	25	8	0	13	0
3	23	50	7	25	13	30
4	30	25	6	30	14	0
5	36	28	6	8	14	30
6	41	22	4	54	15	0
7	45	29	4	7	15	30
8	49	1	3	32	16	0
9	52	0	2	57	16	30
10	54	27	2	29	17	0
11	56	37	2	10	17	30
12	58	29	1	52	18	0
13	59	58	1	29	18	30
14	61	18	1	20	19	0
15	62	25	1	7	19	30
16	63	22		57	20	0
17	64	6		44	20	30
18	64	49		43	21	0
19	65	21		32	21	30
20	65	47		22	22	0
21	66	6		19	22	30
22	66	20		14	23	0
23	66	28		8	23	30
24	66	31		3	24	0
25	67	21		1	Month	
26	69	48		2	Months	
27	73	37		3	Months	
28	78	30		4	Months	
29	84	5		5	Months	
30	90	0		6	Months	

Countries in the different Climates North of the Equinoctial Line.

I. Within the firſt climate, lie the gold and ſilver coaſt in Africa; Malacca, in the Eaſt Indies; Cayenne and Surinam, in Terra Firma, South America.

II. Here lie Abyſſinia, in Africa; Siam, Madras, and Pondicherry, in the Eaſt Indies; Straits of Darien,

Darien, between North and South America; Tobago, the Grenades, St. Vincent, and Barbadoes, in the Weſt Indies.

III. Mecca, in Arabia; Bombay, part of Bengal, in the Eaſt Indies; Canton, in China; Mexico, Bay of Campeachy, in North America; Jamaica, Hiſpaniola; St. Chriſtopher's, Antigua, Martinico, and Guadaloupe, in the Weſt Indies.

IV. Egypt, and the Canary iſlands, in Africa; Delly, capital of Mogul empire, in Aſia; Gulph of Mexico, and Eaſt Florida, in North America; the Havannah, in the Weſt Indies.

V. Gibraltar, in Spain; part of the Mediterranean Sea; the Barbary coaſt, in Africa; Jeruſalem, Iſpahan, capital of Perſia; Nankin, in China; California, New Mexico; Weſt Florida, Georgia, and the Carolinas, in North America.

VI. Liſbon, in Portugal; Madrid, in Spain; Minorca, Sardinia, and part of Greece, in the Mediterranean; Aſia Minor; Part of the Caſpian Sea; Samarcand, in Great Tartary; Pekin, in China; Corea and Japan; Williamſburg, in Virginia; Maryland and Philadelphia.

VII. Northern provinces of Spain; ſouthern provinces of France; Turin, Genoa, and Rome, in Italy; Conſtantinople, and the Black Sea, in Turkey; the Caſpian Sea, and part of Tartary; New-York, and Boſton, in New England.

VIII. Paris, Vienna, capital of Germany; New-Scotland, Newfoundland, and Canada.

IX. London,

IX. London, Flanders, Prague, Dreſden; Cracow, in Poland; ſouthern provinces of Ruſſia, part of Tartary; north part of Newfoundland.

X. Dublin, York, Holland, Hanover, and Tartary; Warſaw, in Poland; Labrador, and New South Wales, in North America.

XI. Edinburgh, Copenhagen, Moſcow, Cape of Ruſſia.

XII. South part of Sweden; Tobolſki, Cape of Siberia.

XIII. Orkney Iſles, Stockholm, capital of Sweden.

XIV. Bergen, in Norway; Peterſburgh, in Ruſſia.

XV. Hudſon's Straits, North America.

XVI. Siberia, and the South-weſt part of Greenland.

XVII. Drontheim, in Norway.

XVIII. Part of Finland, in Ruſſia.

XIX. Archangel, on the White Sea, Ruſſia.

XX. Hecla, in Iceland.

XXI. Northern parts of Ruſſia and Siberia.

XXII. New North Wales, in North America.

XXIII. Davis's Straits, in ditto.

XXIV. Samoieda.

XXV. South part of Lapland.

XXVI. Weſt Greenland.

XXVII. Zembla Auſtralis.

XXVIII. Zembla Borealis.

XXIX. Spitzbergen, or Eaſt Greenland.

XXX. Unknown.

A degree

A degree of latitude is 60 geographic miles, which is equal to about 69½ miles Britiſh meaſure;—and a degree of longitude is of the ſame length on the equator: But the degrees decreaſe in all parallels of latitude between the equinoctial and the poles, and at thoſe places they come to a point. The ſubſequent TABLE exhibits the variation, or decreaſe, in geographic miles, and hundredths of miles, in all the intermediate degrees of latitude.

Deg. Lat.	Long Miles	100th part of a mile.	Deg. Lat.	Long Miles	100th part of a mile.	Deg. Lat.	Long Miles	100th part of a mile.
1	59	96	31	51	43	61	29	4
2	59	94	32	50	88	62	28	17
3	59	92	33	50	32	63	27	24
4	59	86	34	49	74	64	26	30
5	59	77	35	49	15	65	25	36
6	59	67	36	48	54	66	24	41
7	59	56	37	47	92	67	23	45
8	59	40	38	47	28	68	22	48
9	59	20	39	46	62	69	21	51
10	59	8	40	46	0	70	20	52
11	58	89	41	45	28	71	19	54
12	58	68	42	44	95	72	18	55
13	58	46	43	43	88	73	17	54
14	58	22	44	43	16	74	16	53
15	58	0	45	42	43	75	15	52
16	57	60	46	41	68	76	14	51
17	57	30	47	41	0	77	13	50
18	57	4	48	40	15	78	12	48
19	56	73	49	39	36	79	11	45
20	56	38	50	38	57	80	10	42
21	56	0	51	37	73	81	9	38
22	55	63	52	37	0	82	8	35
23	55	23	53	36	18	83	7	32
24	54	81	54	35	26	84	6	28
25	54	38	55	34	41	85	5	23
26	54	0	56	33	55	86	4	18
27	53	44	57	32	67	87	3	14
28	53	0	58	31	79	88	2	9
29	52	48	59	30	90	89	1	5
30	51	96	60	30	0	90	0	0

CHAP.

CHAP. VI.

Of the Circumference and Diameter of the Earth's Orbit, and her Diurnal Motion—Why the Style was, and ought to be altered—Of the Diviſion of Time—When different Nations begin their Days—Of the Birth and Crucifixion of CHRIST—*The reputed Æra not the true Æra of his Birth, which is demonſtrated by Aſtronomical Calculations—Of the Clock Equations—How to regulate a Clock, &c.*

THE mean diſtance of the earth from the ſun is about 81 millions of geographic miles, and the circumference of her orb is $509\frac{1}{7}$ millions, and ſhe travels about 1,394,520 miles in twenty-four hours—a motion much more rapid than that of a cannon-ball. Her diurnal motion is 21,600 miles in a day.

Her revolution round the ſun is completed in 365 days 5 hours 48 minutes and 57 ſeconds of time; and by reaſon of thoſe odd hours, minutes and ſeconds, we are obliged to add one day to the month of February, every fourth year, to make the years agree as near as poſſible to the earth's revolutions; but as there are 11 minutes and 3 ſeconds wanting in each year to make 6 hours, the time is carried

carried forward 44 minutes and 12 ſeconds in the ſpace of four years. At this rate, it advances 18 hours and 25 minutes every century, and 1 whole day, or 24 hours, in ſomething more than 130 years and three months and an half. From hence ariſes the neceſſity of altering the ſtyle; for if it was not altered, the ſeaſon of the year that now happens in the middle of July, would fall in the middle of January, in about 23,725 years. The ſtyle was altered or brought back eleven days in 1752; and ſince that period, the time has run forward 6 hours 59 minutes and 54 ſeconds; and in 1882, it will be time to bring it back a whole day, or alter the ſtyle again.

Time is divided by us into centuries, years, months, weeks, days, hours, minutes, ſeconds, &c. A century is a revolution of 100 years. A year is one revolution of the earth through the ſigns of the zodiac. A month is the quantity of time that the earth ſpends in paſſing through one ſign, called a yearly or a calendar month. A week is 7 days; 24 hours is a day; 60 minutes is an hour, and 60 ſeconds a minute. Four weeks is called a weekly month.

Common or civil years are of different lengths, according to the cuſtom of different nations.—— Some reckon their year by ſolar, and ſome by lunar motion.

The civil year contains 365 days for three years, which are called common years; and every fourth year contains 366 days, called Biſſextile, or Leap Year. The civil years are alſo called Julian Years, becauſe

becauſe Julius Cæſar was the firſt perſon who added one day to every fourth year.

The civil, or common lunar year, contains 12 lunations, or 354 days; which is 11 days ſhorter than the ſolar. Therefore, to ſupply this defect, and make the lunar correſpond with the ſolar time, the Jews added 30 days to every third year: but that was not enough by about 30 days and 18 hours, to make thoſe reckonings agree. Twelve lunations was called the *complete*, and the addition of the 30 days the *vacant* or *embolimic* year. The firſt Romans uſed the Jewiſh mode of reckoning; and afterwards Julius Cæſar introduced his mode of computation: but as his mode was deficient, and the time had advanced too forward, Pope Gregory, in 1582, ordered that ten days ſhould be added to the 5th of October—which brought the ſeaſons back to their proper places—and the 5th of this month was called the 15th.

Aſtronomers begin their day at noon—the Jews began their days at the ſetting of the ſun; (hence it is ſaid in the Scripture, that the evening and the morning was the firſt day:)—the Chriſtians begin their days at midnight; and the ancient Babylonians, Perſians, Syrians, and modern Greeks, begin their days at the riſing of the ſun.

There are two kinds of hours—an equal, and an unequal. An equal hour is one 24th of a mean day, meaſured by a regulated clock. An unequal, is one-twelfth part of the time that the ſun is above the horizon; and the longer the days are, the longer will the hours be.—— The Jews made their

their hours in this manner, and reckoned time by ſaying, the firſt, ſecond, third, &c. hour of the day, or the firſt, ſecond, third, &c. hour of the night.

The ſun riſes and ſets at Boſton, in America, about ſeven hours later than it does at Jeruſalem, and about four hours and forty minutes later than it doth at London.

The common æra of Chriſt is four years later than the true æra: hence what we call 1790, ought to be called 1794; for he was born before the death of Herod the Great, who ſought to kill him as ſoon as he heard of his birth. And, according to the teſtimony of Joſephus, (b. xv. c. 8.) there was an eclipſe of the moon in the time of Herod's laſt ſickneſs, a little before his death;—which eclipſe ſome aſtronomical tables ſhew to have happened in the 4710th year of the Julian period, March 13*th*, 3*h*. 21*m*. after midnight, at Jeruſalem. Now Chriſt muſt have been born ſome months before Herod's death; becauſe, in the interval between his birth and Herod's death, he was carried into Egypt for the preſervation of his life.—His birth therefore muſt be about four years before the reputed æra.

Chriſt died in the 4746th year of the Julian period, on Friday the third of April, in the 33d year of his age, according to the reputed æra—or 37th, according to the true æra, diſcovered by the eclipſe of the moon already mentioned. He was put on the croſs about noon, and expired at about three in the evening, the whole neighbourhood of Jeruſalem being overſpread with a miraculous darkneſs

darkneſs during the time of his ſuffering. A heathen writer, *viz.* Phlegon, the Trallian, for want of knowledge in Aſtronomy, imputed the cauſe of this darkneſs to an eclipſe of the ſun; but as the moon was near her full, there could not be any eclipſe of the ſun by her interpoſition at that time.

There are but four days in a year, in which a clock, or watch, that meaſures time even, will agree with the ſun, *viz.* April 15, June 16, Auguſt 31, and December 24. At all other times, he will be too faſt or too ſlow. From Dec. 24, to April 15, he will be too ſlow; from thence, to June 15, too faſt: from thence to Auguſt 31, ſlower; and from thence to Dec. 24, too faſt. This variation is called the equation of time.

The greateſt equations are as follow, *viz.*

Feb. 10.	the ſun will vary	14*m.* 41*s.*	too ſlow
May 14.		4*m.* 2*s.*	too faſt
July 25.		5*m.* 58*s.*	too ſlow
Nov. 1.		16*m.* 11*s.*	too faſt.

Theſe variations ariſe from the inequalities of the earth's motion, which performs her diurnal rotations ſooner at one time than ſhe doth at another. When the ſun agrees with the clock that meaſures time even, the rotation is performed exactly in 24 hours; but when he is too faſt of the clock, the rotation is performed in leſs than 24 hours; and when it is too ſlow, it is performed in more, &c.

One apparent revolution of the ſun to the meridian, will be loſt by a planet moving round him—in the ſame manner that a traveller would loſe a day going

going round the earth the ſame way with the apparent motion of the ſun, who would reckon one day leſs at his return than the inhabitants remaining at the place of his ſetting out, whatever number of days he had ſpent in going round the globe.

Hence we have two years, *viz.* the ſolar and the ſidereal. The former contains ſomething more than 365 revolutions of the ſun to the meridian, and the latter upwards of 366 revolutions of a fixed ſtar to the ſame meridian.—Hence alſo we have two kinds of days, *viz.* a ſolar and a ſidereal. The ſolar is that quantity of time that the ſun ſpends in going from a meridian till he returns to it again; the ſidereal is the time that a fixed ſtar ſpends in departing from a meridian till it returns again. A mean ſolar day is equal to 24 hours; a mean ſidereal, to 23 hours 56 minutes 4 ſeconds.

How to regulate a Clock or Watch.

Obſerve through a ſmall hole in a window-ſhutter the time any fixed ſtar diſappears behind a chimney, or any other object at a ſmall diſtance; and if on the ſucceeding night it comes to the meridian 3 minutes 56 ſeconds ſooner by the clock or watch, and on the next night 7 minutes 52 ſeconds ſooner, the next night 11 minutes 48 ſeconds ſooner, and ſo on for every night ſooner in that proportion, your watch, &c. is right. In one month the variation from the firſt obſervation will be two hours, in three months ſix hours, in ſix months twelve

hours, in nine months eighteen hours, and in twelve months twenty-four hours.

A TABLE of the Annual Revolutions, Diurnal Motions, and Distances of the Primary Planets from the Sun, &c.

	Annual Revolutions.				Diurnal Rotations.			
	D.	H.	M.	S.	D.	H.	M.	S.
☉	Has no revolution.				25	12	0	0
☿	87	23	14	34	Unknown.			
♀	224	16	41	31	0	23	20	0
⊕	365	5	48	57	0	23	56	4
♂	686	22	18	19	1	0	40	0
♃	4330	8	35	4	0	9	56	0
♄	10750	13	14	4	Unknown.			
G	82 ½ years.				Unknown.			

The Diameters of the Primary Planets, with their Distances from the Sun.

	Diameters in Englisſh miles	Diſtances in Englisſh miles.
☉	890,000	
☿	3,000	42,000,000
♀	7,900	49,000,000
⊕	7,970	100,000,000
♂	5,400	167,000,000
♃	90,000	570,000,000
♄	70,000	949,000,000
G	797,000	1898,000,000
The ☽'s diameter is 2180 miles.		

The

The Revolutions of the Secondary Planets.

	D.	H.	M.	S.	Diſt. from the Primary. Miles.
1. Of the Earth's moon	27	7	43	0	240,000
2. Of Jupiter's firſt moon	1	18	28	36	363,600
3. Of his ſecond ditto	3	13	18	52	580,000
4. Of his third ditto	7	3	59	40	925,000
5. Of his fourth ditto	16	18	5	6	1,630,000
6. Of Saturn's firſt moon	0	22	40	46	
7. Of his ſecond ditto	1	8	53	9	
8. Of his third ditto	1	21	19	0	202,800
9. Of his fourth ditto	2	17	40	0	257,900
10. Of his fifth ditto	4	12	27	0	362,900
11. Of his ſixth ditto	15	22	41	0	841,000
12. Of his ſeventh ditto	79	22	0	0	2,463,000
13. Of Georgium's firſt moon	13	11	5	1	
14. Of his ſecond ditto	18	17	1	19	

CHAP. VII.

A ſhort Hiſtory of Comets—Of the Laws by which they are governed—Their Utility in the Univerſe.

COMETARY Aſtronomy is but in its infant ſtate; for, their motions are ſo very irregular that it is very difficult to determine their revolutions with exactneſs, by aſtronomical obſervations.

I ſhall, in the firſt place, give a ſhort hiſtory of Comets:

Secondly, Mention the laws by which they are governed; and,

Thirdly, Shew their utility in the univerſe.

I. *Of the Hiſtory of Comets.*

COMETS, called Blazing Stars, are durable bodies, compoſed of matter capable of undergoing prodigious degrees of heat and cold, as will hereafter be demonſtrated. They have undoubtedly appeared in every age ſince the creation; for the ancient Egyptians and Chaldeans had ſome knowledge of them: But it is evident that the Ancients knew but little concerning the nature of Comets, for they were not able to trace their motions. The celebrated Sir Iſaac Newton was the firſt mathematician that diſcovered the nature, philoſophy, and aſtronomy of thoſe luminaries.

Ariſtotle, and the Learned among the Greeks, were of opinion, that Comets were nothing but ſublunary vapours, or airy meteors; and from hence they neglected to trace them through their intricate paths.

The Ancients ſuppoſed that the appearance of Comets were ominous of ſome future judgments, ſuch as terrible thunders, lightnings, earthquakes, inundations, wars, famines, peſtilences, &c.; and ſome among the Moderns retain that opinion to this day: However, it is exploded by the Learned.

The Comets are ſo very numerous, that ſome have ſuppoſed that more than four hundred belong to our ſyſtem: But it is not really known how great their number is; and it is probable that ſome centuries muſt roll off before their number is known. Dr. Herſchel informed me in October 1790, that four had made their appearance within that

that year; but none of them had been viſible to the naked eye. But though the number of Comets are ſo great, I have not learnt that the periods of more than three have been determined by aſtronomical obſervations. The firſt appeared in 1661, the ſecond in 1680, and the third in 1757. The period of the firſt is 129 years, that of the ſecond 575, and that of the third 75 only. It has been expected that the firſt would have been viſible this year: but I have not heard of its appearing. Dr. Herſchel does not ſuppoſe that either of thoſe diſcovered by his teleſcope, was the one we have been looking for.

II. *Of the Laws by which Comets are governed.*

1. THE comets perform their revolutions round the ſun in certain determinate or appointed times, like Saturn, Jupiter, Mars, &c.

2. They are moved by a projectile force in their orbits, and a central force towards the ſun, like the planets: hence their motions, in ſome meaſure, are regular and uniform; and the areas they deſcribe round the ſun, are proportioned to the times of their periods.

3. Their orbits are not right lines, nor circular, but elliptical or parabolic, much like thoſe of the planets, only they have greater degrees of excentricity.

4. Some of their excentricities are ſo very extenſive, that the ſides of their elliptic or parabolic orbits are almoſt converted into right lines.

5. Thoſe comets that have the greateſt excentricities, approach the neareſt to the ſun at the

times of their perihelions; and thoſe that have the leaſt, are *vice verſa*.

6. The comets and planets are governed by one and the ſame law: hence the ſquares of the times they ſpend in revolving round the ſun, are always proportionate to the cubes of their greateſt diſtance from him: hence alſo, the longer their orbits are, the longer will their revolutions be.

7. The motions of ſome comets are direct, according to the order of the ſigns of the zodiac; but others run retrograde, or contrary to that order.

8. The planes of the orbits of ſome comets have not three degrees of elevation above the plane of the ecliptic, whilſt others have almoſt ninety.

9. Some comets have extreme degrees of light and heat, when they are at their perihelions; and ſuch degrees of cold and darkneſs, when they are at their aphelions.

10. When they are near the ſun, their motions are very ſwift; but when they are at their greateſt diſtance from him, their motions are remarkably ſlow.

11. The comets, like the moon, ſhine with a light reflected from the ſun: they are environed and compreſſed by a large atmoſphere, conſiſting of fine matter replete with clouds and vapours.

12. The head of a comet is the atmoſphere itſelf, in which is a large internal body called the *Nucleus*; it ſhines with the borrowed light that I have but juſt mentioned.

13. The

13. The tail of a comet generally ariſes from the *Nucleus*, and is an exhalation in the form of a fiery beam.

14. The length of the tails of ſome comets have been ſeventy or eighty millions of miles; and their breadth or thickneſs, thirty or forty millions more. Their tails are always turned to the parts that are oppoſite to the ſun, becauſe it is natural for fumes to fly from the heat, like the ſmoke from the fire.

15. The magnitude of ſome comets have been ſuppoſed to be equal to that of the earth; and the diameters of their atmoſpheres, near twelve times greater than that which ſurrounds our globe.

16. The extremities of the tails of ſome comets are ſo thin and tranſparent, that the fixed ſtars may be ſeen through them; but no ſuch thing can be diſcovered through thoſe parts of their tails that are near the heads of the comets, by reaſon of the denſity of their parts.

17. The comets are ſo very numerous, that they make the greateſt part of our ſolar ſyſtem: they may be properly called a ſort of planets, becauſe they revolve round the ſun.

18. As the path of a comet appears much like a great circle of the ſphere, it may eaſily be delineated upon the ſurface of a celeſtial globe.

19. The velocity of a comet will ſeem to be leſs than it really is, if the earth moves the ſame way; but if it moves contrary, it will appear greater.

20. The tails of ſome comets, when they are in the aſcending or deſcending nodes, may ſtrike acroſs the orbit of the earth, and involve this

globe in them. The dreadful comet of 1680 was, on the 11th of November, found to be not more than the ſemi-diameter of the ſun to the northward of this orbit.

21. The comets have an annual parallax, but not any of a diurnal kind.

22. They are capable of undergoing prodigious degrees of heat. Sir Iſaac Newton demonſtrated, when the comet I have but juſt mentioned arrived at its perihelion, which happened December 11, 1680, it was as much nearer to the centre of the ſun than the earth was to the ſame, as 6 is to 1000; and that the ſun's heat on the comet, was 2000 times greater than a red-hot iron. Hence it is evident, that the comet muſt retain its heat a long time afterwards: for it has been proved, that a red-hot globe, of the magnitude of our earth, would ſcarcely loſe all its heat in 50,000 years. It is therefore probable, that the comets carry a part of their heat to their aphelions, or greateſt diſtances from the ſun.

23. The tails of comets are generated by the heat of the ſun, for they have no tails at all until they come within a certain diſtance of that luminary; then the exhalations begin to appear, and they grow longer and longer until the comets have juſt paſſed their perihelions: afterwards, the tails grow ſhorter and ſhorter as the heat decreaſes, and at laſt they wholly diſappear:—hence it is manifeſt, that the nearer they approach to the ſun, the longer will their tails be.

24. It is probable, that in the atmoſpheres of the comets, there may be violent tornados, and terrible

terrible ſtorms of thunder, rain, hail, ſnow, &c.: but what damage our earth might receive by being ſtruck by the tail of a comet, is unknown; only, as their motions are very ſwift, it is reaſonable to ſuppoſe that this globe and the comet would both receive a very great ſhock.

III. *Of the Utility of Comets.*

AS to the utility of comets, we may reaſonably ſuppoſe, that the *Supreme Creator* made them not in vain, and that they are ſerviceable in rectifying and reſtoring the gradual decays of other heavenly bodies: for, as the comets paſs through our ſyſtem, their atmoſpheres are ſo greatly rarified and expanded by the heat of the ſun, that they are ſcattered through all the planetary regions; and being thus diſperſed, muſt be, by the power of gravitation, attracted into the atmoſphere of our earth and the other planets; which undoubtedly enriches the circumambient air, repairs the decays of thoſe globes, and promotes the generation and nutrition of the vegetable and animal productions; laying a foundation for the preſervation of the health, and prolongation of the lives, not only of the human race, but of the birds, beaſts, and fiſhes. Eminent philoſophers have ſuppoſed, that the moſt ſubtile and active particles of our air, upon which the life of things chiefly depends, is derived to us, and ſupplied by comets.

It has been obſerved, that the dark ſpots in the ſun are only parts that have been burnt out; and that they are nothing but a dead calx, left without fire;

fire; and as thoſe ſpots have ſhined out again with great ſplendour, it has been ſuppoſed, that, by the central force of the comets, they are brought nearer and nearer to the ſun in each revolution; that ſome have already fallen into him, and ſupplied that immenſe body of fire with new fuel; that from his being thus renewed and recruited, he has ſhined out again with a greater luſtre; and that the ſpots that had appeared for a long time before, have thus ſuddenly become inviſible*.

The great fixed ſtars are undoubtedly ſuns to other ſyſtems of planets and comets; and it has been ſuppoſed, that thoſe ſuns do frequently loſe their brightneſs by the emiſſion of light and vapours; and that they are rekindled at certain times, by comets falling upon them: that by their being thus renewed, they ſuddenly ſhine again with remarkable ſplendour; that from hence they have been taken for new ſtars, as ſuch ſtars have often ſeemed to appear, and others grow dim and diſappear.

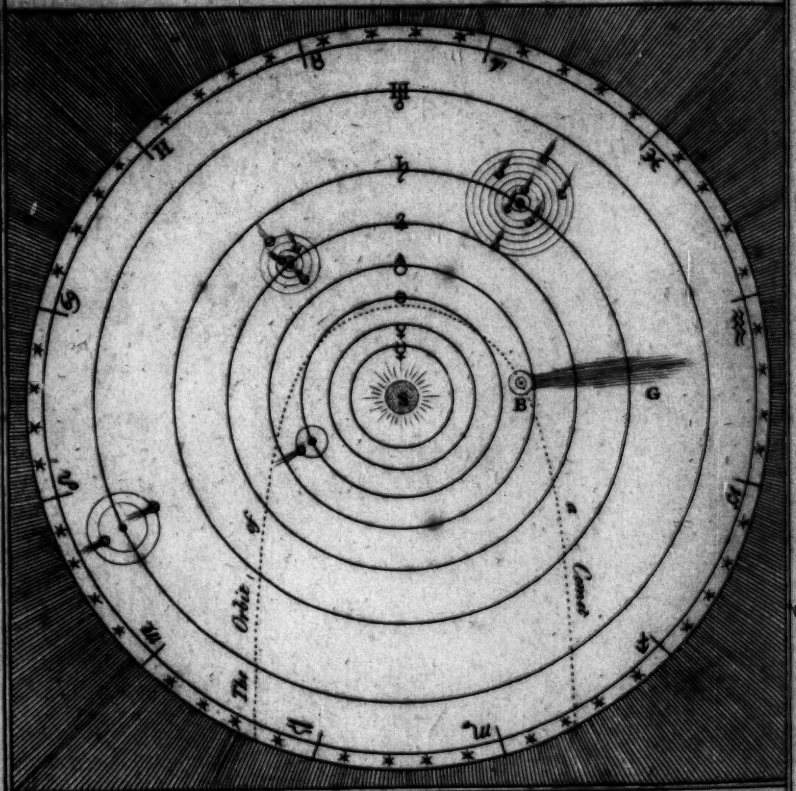
* A ſpot more than thrice the bigneſs of this earth, paſſed over the ſun's centre, April 21, 1766, which I ſuppoſe was a Comet.

I ſhall

A Figure of the SOLAR SYSTEM.

Engraved for the AMERICAN ORACLE.

by I. Robinson. London.



EXPLANATION.

S. In the Centre represents the Sun, The other Characters the Orbits of the Primary Planets. The smaller Circles the Orbits of the Moons, of Georgium Sidus, Saturn, Jupiter, & the Earth. But the Orbits of the Primaries, and Secondaries, are not drawn at proper distances for the want of room: however they will serve to give the Reader an Idea of the System. The outermost Circle represents the Sphere of the fixed Stars, & the twelve signs of the Zodiac. B. the Body. G. the tail of the Comet.

I ſhall conclude with the following;

THE Mighty God hath all the ſyſtems made
Of worlds, and hath a ſolid baſis laid
On which the univerſal fabric ſtands,
Obeying of his great and good commands.
I have attempted truly to deſcribe,
How all the planets and the comets ſlide
In wond'rous order, as they all do run,
As they revolve around the ſplendid ſun.
The comets' uſe likewiſe I did relate,
How their expanded air doth circulate
Through all the ſyſtem; how that they may fall,
And be like fuel on Sol's burning ball.
As time rolls off, the ſtars ſhall fade away,
And the glad face of ſun and moon decay:
If not renew'd,—we don't pretend to doubt,
The light in all ſuch globes will ſoon go out.
Heart can't conceive, nor mortal tongue expreſs,
Whilſt we abide in this world's wilderneſs,
What wondrous works the Great Supreme hath laid
Within the vaſt expanſe which he hath made.
Thus I've the works of the Great God *of Might*
In part deſcrib'd, whoſe power is infinite!
Who, from this globe, will all his ſaints convey
To the bright regions of immortal day!

CHAP.

CHAP. VIII.

A Definition of ASTROLOGY—*Where it is ſuppoſed it was firſt ſtudied—How Aſtrologers pretend to tell future Events, and where ſtolen Goods are conveyed—Of Conjurers, Witches, Wizards, Sorcerers, Necromancers, Dreams, Viſions and Apparitions—Whether the Devil knows future Events.*

ASTROLOGY is an art whereby its profeſſors pretend to tell things paſt, preſent, and to come, by the influence of the ſtars, their motions, and aſpects to one another.

It is ſuppoſed that this art was firſt ſtudied in Egypt or Babylon, and that from thoſe countries it has been ſpread over the face of the globe.

This art conſiſts of two branches, *viz.* the aſtronomical and the aſtrological. The former is the art of erecting a figure of the firmament, repreſenting the ſituations of the planets for any given time, with the aſpects they bear to each other; and the latter is the art of judging of the events of things by the figure erected, as that of the telling of fortunes, where ſtolen goods are conveyed to, &c. But as I acquainted myſelf with every branch of the art when I was young, and found by my own experience and obſervation that it is only a deception

deception as to the telling of future events, I ſhall explode it as an impoſition contrived by impoſtors to delude the ignorant, and get away their money for nothing. It is true, indeed, that an Aſtrologer may chance to gueſs right ſometimes; but I am perſuaded that he cannot tell when any perſon will be married, how long he will live, nor where things are ſecreted that have been carried off by thieves.

I therefore adviſe all Aſtrologers who follow the practice of impoſing upon the ignorant world, to deſiſt from their evil conduct, and all rational people not to waſte their time and money in running after ſuch impoſtors.

As to conjurers, witches, wizards, ſorcerers, and necromancers, it is ſaid that they uſe magic or the black art, deal with familiar ſpirits, uſe enchantments, and have their aſſiſtance from the devil. It is alſo ſaid, that the necromancers tell future events, by calling up dead men's ghoſts, or the devil; and that the witch of Endor raiſed up Samuel in this manner. Many ſuppoſe that there are no witches in theſe times: but be that as it may, it is evident by the Scriptures that there were witches in old times; for it is ſaid in the Moſaical Law, "Thou ſhalt not ſuffer a witch to live;" and in the New Teſtament, witchcraft is mentioned in the catalogue of capital abominations.

As I never acquainted myſelf with magic, I cannot tell how far the maſters of the art can go in telling future events; but one author told me, that he did not believe that there is any devil in the

the univerſe: For he ſaid, he had been alone in a wilderneſs ſeven days and ſeven nights, and had ſpoke to no being during that time; only he ſummoned the devil to make his appearance—and as he did not appear, he concluded that there is no ſuch ſpirit. But, by the ſame rule, the author might have concluded that there is no Supreme Being in the univerſe, if he had been ſummoned, and had not appeared.

A dream is the action of our imaginations when we are aſleep; and there are ſome that are good, and others that are bad. The good conſiſt in the revelation of the will of the Almighty, and the bad in divers vanities. Vid. *Eccleſ.* v. 7.

A viſion is an apparition, phantaſm, or ghoſt, which is the ſpirit of a perſon deceaſed, and alſo a divine revelation, by a dream, or an outward voice.

An apparition is the appearing of a ſpirit, ghoſt, or viſion. Hence an angel may be called an apparition; for the Almighty maketh his angels ſpirits, and his miniſters a flame of fire. Vid. *Heb.* i. 7.

That there were dreams, viſions and apparitions in ancient times, cannot be doubted by thoſe who believe the ſacred Scriptures; for the Almighty revealed his mind and will to his patriarchs, prophets and apoſtles, by ſending his angels or ſpirits to them, who ſometimes made a viſible appearance, and delivered their meſſages by outward voices, dreams, &c.

The angels that gave Lot warning concerning the deſtruction of Sodom and Gomorrah, made an outward

outward appearance, and delivered their meſſage by an outward voice. Vid. *Gen.* xix. And the angel that warned Joſeph to depart into Egypt, appeared to him in a dream, ſaying, "Ariſe! take the young child and his mother, and flee into Egypt, &c." Vid. *Matt.* ii. 13.

We have alſo an account in the Scriptures, of the appearance of ſeveral perſons after they had been dead hundreds of years; for when Chriſt was transfigured on the top of a high mountain, when his face did ſhine as the ſun, and his raiment became as white as the light, Peter, James and John being preſent, there appeared unto them Moſes and Elias talking with him. Vid. *Matt.* xvii. 1, 2, 3. When the angel of the Lord had liberated Peter from confinement, he went to the houſe of Mary, where thoſe that were within, not believing it was Peter, ſaid, It is his angel. Vid. *Acts* xii. Hence it is manifeſt that ghoſts or ſpirits appeared in thoſe times, or they would not have expreſſed themſelves in ſuch a manner.

Moreover, we have alſo an account in the Scriptures, of the appearance of evil ſpirits; for when Micaiah related his viſion concerning the deſtruction of Ahab, he ſaw a lying ſpirit, which was the devil, for he is the father of lies. Read the twenty-ſecond chapter of the Firſt of Kings. In the book of Job it is ſaid, that there was a day when the ſons of God came to preſent them before the Lord, and Satan came alſo amongſt them; and in the fourth chapter of Matthew, we have an account of the Devil's coming to tempt CHRIST.

From

From hence it is manifeſt, that both good and bad ſpirits have appeared in old times; and as the power of the Holy One of Iſrael is not limited, as he is the ſame yeſterday, to-day, and for ever, and doth of his ſovereign will and pleaſure in the armies of heaven above, and amongſt the inhabitants of this lower world, he can ſend his angels, the ſpirits of his ſaints, or thoſe in the infernal regions, to any part of the univerſe, and cauſe them to appear to whomſoever he pleaſes; for all the material and immaterial beings are at his command, and all are obliged to obey his ſovereign orders.

Many ſuppoſe that neither the angelical nor the diabolical ſpirits, nor the ghoſts of perſons deceaſed, are ſuffered to appear in the preſent age. However, it is evident by the teſtimonies of perſons of the beſt credit and reputation, that apparitions have been ſeen of late. Of this there have been a number of recent proofs, two of which I will juſt mention.

A young man who had left his father in the North of England, and was off many leagues at ſea, being at cards in the cabin, ſtopped playing all at once, and gazed with aſtoniſhment. The company aſked, what he was gazing at? and he ſaid that his father appeared to him. After his arrival in Great Britain, he found that his father died at the inſtant that he made his appearance. This I had from a lady of undoubted veracity, who was a near neighbour to the father and the ſon.

A woman with whom I was well acquainted, being on her death-bed, expreſſed a great deſire,

juſt

juſt before ſhe expired, of ſeeing her only ſon, who was then at ſea, and of delivering to him a meſſage. She mentioned to the by-ſtanders what ſhe wanted to ſay to her ſon, and died immediately. She was in New-England, and her ſon near the Weſt-Indies; and about the time that ſhe died, ſhe appeared to him ſtanding on the ſhrowds of the veſſel, delivered her meſſage, walked over ſeveral barrels on the deck, then went down the ſide of the veſſel, and appeared to be floating on the water ſome time, and then ſunk. The young man ſet down the day and the hour that ſhe appeared, and alſo the words ſhe had ſpoken. He ſuppoſed that what he had ſeen was a token of his mother's death; and, on his arrival home, found that ſhe died at the time ſhe appeared to him, and that the words that he had written correſponded exactly with thoſe delivered to the by-ſtanders. He went to ſea afterwards, and was drowned. Perhaps her appearing to him in that manner, was a forerunner, not only of her own, but of his death.

Apparitions may be ſeen by ſome, and not by others, which is evident by the company's not ſeeing the man that appeared to his ſon in the cabin; but though every one is not permitted to ſee them, it is no proof that they do not appear at all. Many that have retained the opinion for a long time that there are no ſuch appearances, have afterwards been convinced of their error by ſeeing ſuch things themſelves.

Thoſe that deny that the ſpirits of the inviſible world have ſometimes made their appearance, muſt affirm that the writings of the holy patriarchs,

prophets and apoſtles, and the teſtimonies of many good men and women, are all falſehoods, and that the Almighty is an imperfect being, that it is not in his power to cauſe ſuch appearances; but ſuch an opinion muſt be very abſurd and ridiculous.

Beſides the appearance of good angels, the ſpirits of ſome that have been dead, and Satan himſelf, we have an account in the Scriptures, of the appearance of the Almighty; for he appeared to Adam and Eve, to Cain, to Noah, and to others in the antediluvian world, and to Moſes and others ſince the flood.

Although I am far from being timorous or ſuperſtitious, and believe people are often affrighted and think they ſee apparitions when they do not, yet I am convinced that they do ſometimes appear, not only from the writings of the Scriptures, and the teſtimonies of perſons of good repute, but from my own experience and obſervation, having ſeen not leſs than five in the day-time, and when I was not thinking of any ſuch things, nor the leaſt affrighted till they all vaniſhed; excepting one, which I knew to be an apparition as ſoon as I ſaw it, becauſe it was in the form of a coffin, and proved ominous of the death of a near relation: three of the others were in the forms of men, and the other in the form of a woman. I have alſo heard noiſes, which, together with the apparitions, I eſteemed to be forerunners of the deaths of certain perſons.

I have often been aſked, whether I believed that the Devil knows future events? and my anſwer has been, that it is probable that he does; for when he tempted Adam and Eve in Paradiſe, he ſaid,

" For

"For God doth know, that in the day ye eat thereof, then your eyes ſhall be opened, and ye ſhall be as gods, knowing good and evil." Vid. *Gen.* iii. 5.; which proved true according to the Almighty's own words, *viz.* "And the Lord God ſaid, Behold! the man is become as one of us, to know good and evil." *Gen.* iii. 22.

When the witch of Endor had raiſed up Samuel, or the Devil in his ſhape, a true account was given of the things that happened afterwards. From hence we may conclude, that the Devil knows future events, though perhaps not every thing that is to happen.

To conclude, I do not ſee any thing in natural philoſophy that is repugnant to my hypotheſis concerning apparitions; and I believe it is in the power of the Great Governor of the Univerſe, to cauſe them to appear to the ſons and daughters of men, and to reveal his mind and will to his children by his own Spirit, or by the ſpirits of his ſaints or angels.

CHAP. IX.

A Definition of ATHEISM, SUPERSTITION, *and* IDOLATRY—*Of the four Religions—The Chriſtians divided into different Sectaries—Partiality reigns too much among them—The Articles of the Mahometan Religion—When the Pagan commenced—The Heathen Gods and Goddeſſes.*

ATHEISM is the denying or diſbelieving the Being of a God.

Superſtition is an introduction of needleſs ceremonies into the modes of worſhip; the adding of things not required by the *Great Governor* of the Univerſe; a falſe and miſtaken devotion.

Idolatry is the worſhipping of the ſun, moon, and ſtars; the birds, beaſts and fiſhes; and images made by the hands of men, &c.

Some have ſuppoſed that there are no Atheiſts in the world; others ſay, that Atheiſm rather prevails in ſome parts: But be this as it may, there is a plenty of Superſtition and Idolatry in many places, and I am ſorry that Superſtition reigns too much in Chriſtendom.

There are but four Religions in the world, the Jewiſh, Chriſtian, Mahometan, and Pagan.

The Jews adhere to the Moſaical law: The Chriſtians, to the doctrine of Chriſt and his apoſtles:

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The Mahometans, to the tenets of Mahomet; and the Pagans worſhip different kinds of idols.

The Chriſtians are divided into a great number of Sectaries, as Roman Catholics, Lutherans, Preſbyterians, Baptiſts, Quakers, Methodiſts, Moravians, Sandemanians, Arians, Socinians, Arminians, Univerſaliſts, &c. many of which are too uncharitable to thoſe not of their own perſuaſion. I was even taught myſelf, when I was young, that if I aſſembled with any ſect to perform religious worſhip beſides the one I was brought up with, I went on to the devil's ground. However, I ſoon forſook that ſuperſtitious notion, when I came to conſider that the earth is the Lord's, the fulneſs thereof, the world, and they that dwell therein; and that the poor Devil has not one foot of land on the globe, although he offered to give all the kingdoms of the world to Chriſt, if he would fall down and worſhip him.

The Mahometan religion commenced about 622 years after the birth of Chriſt.

The articles of the religion are:

1. That there is but one God.
2. That Mahomet was ſent by God.
3. The obſervation of purifications.
4. The praying at appointed times.
5. The giving of alms.
6. The faſting in the month Ramezan.
7. The going once in pilgrimage to Mecca.
8. The abſtaining from ſpirituous liquor and gaming.
9. A man may marry four wives, and may keep concubines.

10. Every male ſlave who profeſſes this religion ſhall have his freedom: But as it is ſuppoſed that the women have no ſouls, it is immaterial what perſuaſion they are of.

According to Chronology, the Pagan religion was firſt introduced by Ninus king of Aſſyria, 2084 years before Chriſt. The gods of the Heatheniſh nations have been very numerous; and ſome were called maſculine, and ſome feminine, as will appear by the following catalogue, *viz.*

Abeona, the goddeſs of voyages; Adraſtea, goddeſſes of Nemeſis and Fortuna; Ægeria, a beautiful nymph worſhipped by the Romans, and much by their ladies; Æolus, the god of the winds; Æſculanus, god of riches, worſhipped by the Romans; Æſculapius, god of phyſic; Agenoria, the goddeſs of induſtry; Anatis, the goddeſs of proſtitution among the Arminians; Angerona, the goddeſs of ſilence; Anteverta, the goddeſs of women in labour; Apollo, the god of muſic, poetry, and the ſciences; Argentinus, the god of wealth; Ate, the goddeſs of revenge; Averruncus, a god of the Romans, ſuppoſed to keep off and remove evils and misfortunes; Aurora, goddeſs of the morning, and mother of the ſtars and winds; Autumnus, the god of fruits.—Baal, an Aſſyrian god; Bacchus, the god of wine; Bapta, the goddeſs of ſhame; Bellona, the goddeſs of war; Britomartis, a Cretan goddeſs; Bubona, the goddeſs of oxen.—Cabrus, a god to whom ſalt fiſh was offered in ſacrifice; Camæna and Carna, goddeſſes of infants; Canopus, an Egyptian god; Cardu, an houſehold goddeſs; Cardua, a Romiſh

Romiſh goddeſs, ſuppoſed to preſide over the vital parts of mankind; Catius, a tutelar god to grown perſons; Ceres, the goddeſs of agriculture; Cerus, the god of opportunity; Cœlum, the moſt ancient of the heathen gods; Collina, the goddeſs of the hills; Comus, the goddeſs of laughter and jollity; Concordia, the goddeſs of peace among the Romans; Cunia, a goddeſs of new-born infants; Cupid, the ſon of Mars and Venus, and god of love, ſmiles, &c.—Dagon, a god worſhipped in Canaan; Dercete, a goddeſs; Deverra, a goddeſs of breeding women; Diana Lucina, a goddeſs of women in labour; Diſcordia, the goddeſs of contention; Domiducus and Domitius, two nuptial gods; Dryades, nymphs or gods of the woods. —Educa, a goddeſs of new-born infants; Egeria, a goddeſs.—Fabula, the goddeſs of lies; Fabulinus, a god of infants; Fama, the goddeſs of report; Februa, a goddeſs of purification; Felicitas, the goddeſs of happineſs; Feronia, the goddeſs of the woods; Feſſonia, a goddeſs of wearied perſons; Fidius, a goddeſs of treaties; Flora, the goddeſs of flowers and of corn; Fluviales or Potamides, goddeſſes of rivers; Fornax, a goddeſs of corn and bakers; Fortuna, the goddeſs of happineſs and miſery, ſaid to be blind.—Gelaſinus, the god of myrth and ſmiles.—Harpocrates, the god of ſilence; Hebe, goddeſs of youth; Hippona, the goddeſs of horſes and ſtables; Hoſtilina, a goddeſs of corn; Hyale, a beautiful goddeſs of the woods, and one of Diana's conſtant attendants; Hygia, a goddeſs of health; Hymen, the god of marriage. —Janus, a god of new-born infants; Intercidona,

a goddeſs of breeding women; Jugatinus and Jupiter, perfectus, nuptial gods; Juno, the daughter of Saturn and Ops, ſiſter and wife of Jupiter, great queen of heaven, and goddeſs of marriages and births; Jupiter, the ſon of Saturn and Ops, and ſupreme deity of the Pagan world; Juventa, a goddeſs of youths.—Lactura or Lactucina, a goddeſs of corn; Lares, the ſons of Mercury and Lara, worſhipped as houſehold gods; Lateranus, a houſehold god; Laverna, a goddeſs of thieves; Lemoniades, goddeſſes of meadows; Levana, a goddeſs of new-born infants; Libitina, the goddeſs of funerals; Limnades, goddeſs of lakes and ponds; Lubentia, the goddeſs of pleaſure.—Manageneta, a goddeſs of women in labour; Mantura, a goddeſs of corn; Manturna, Matuta, and Mena, nuptial goddeſſes; Mars, the god of war; Meditrina, a goddeſs of grown perſons; Melicerta, a ſea god; Mellona, the goddeſs of honey; Mercury, the ſon of Jupiter and Maia, meſſenger of the gods, inventor of letters, the god of eloquence, merchandize, and robbers; Minerva, the goddeſs of wiſdom, arts, and war, &c.; Mnemoſyne, the goddeſs of the memory; Momus, god of raillery; Morpheus, the god of dreams; Mors, the daughter of night and ſleep, and goddeſs of death; Muatta, or Muta, the goddeſs of ſilence.—Nænia, the goddeſs of funeral ſongs; Naiades, goddeſſes of rivers and fountains; Napæ'æ, goddeſſes of groves and vallies; Natio and Nudina, goddeſſes of infants; Neæra, a goddeſs loved by Apollo; Nemeſis, or Adraſtæa, the goddeſs of revenge; Neptune, the god of

the

the ſea; Nereides, ſea-goddeſſes; Nox, the moſt ancient of all the Heathen gods; Numeria, a goddeſs of grown perſons; Nyctimene, a goddeſs of Theſſaly.—Occator, a god of harrowing; Oceanus, a very old ſea god; Orbona, a goddeſs of grown perſons; Orcades, the nymphs of mountains; Oſiris, an idol worſhipped by the Egyptians, under the form of an ox.—Pales, the goddeſs of ſhepherds; Pan, a god of the ſhepherds; Partunda, a nuptial god; Patelina, a goddeſs of corn; Paventia and Polina, goddeſſes of infants; Pellonia, a goddeſs of grown perſons; Penates, ſmall ſtatues, or houſehold gods; Phæcaſiani, ancient gods of Greece; Phorcus, a ſea god, who could take any form; Picumnus, a rural god; Pilumnus, a god of corn and breeding women; Pitho, a goddeſs of eloquence; Pluto, the god of Hell; Plutus, god of riches, the blind, lame, and timorous; Pomona, the goddeſs of fruits and autumn; Priapus, god of gardens and debauchery; Propætides, goddeſſes in Cyprus; Proſa or Porrima, a goddeſs of women in labour; Pſyche, the goddeſs of pleaſure.—Quies, the goddeſs of grown perſons.—Robigus, a god of corn; Rumina, a goddeſs of new born infants; Runcina, the goddeſs of weeding; Rucina, a rural deity.—Salus, the goddeſs of health; Sancus, a god of the Sabines; Sator and Sarritor, rural gods; Seia and Segetia, goddeſſes of corn; Senta, a goddeſs of married women; Somnus, the god of ſleep; Stata, a goddeſs of grown perſons; Statanus and Sentia, deities of infants; Stercutus, or Sterquilinus, the god of dung; Stimula and Strenua, goddeſſes

of

of grown perſons; Suada, a nuptial goddeſs; Sylvanus, a god of woods and foreſts; Syrinx, a nymph of Arcadia.—Tacita, a goddeſs of ſilence; Tantalus, nymph of Plota; Tereus, the nymph Biſtonis; Terminus, the god of boundaries; Terror, the god of dread and fear; Themis, the daughter of heaven and earth, and goddeſs of juſtice; Thetis, the goddeſs of the ſea; Tutelina, a goddeſs of corn.—Vacuna, the goddeſs of idle perſons; Vagitanus, a god of little infants'; Vallonia, a goddeſs of vallies; Venus, the goddeſs of love, beauty, and marriage; Vertumnus, god of the ſpring; Veſta, a goddeſs of fire; Viales, deities of highways; Vibilia, a goddeſs of wanderers; Virginenſis and Viriplaca, nuptial goddeſſes; Vitula, the goddeſs of mirth; Volumna, Volumnus, and Volupia, deities of grown perſons; Voluſia, a goddeſs of corn; Vulcan, the god of ſubterraneous fires.

Thus numerous were the idols of the Heathens; and beſides thoſe I have mentioned, ſome worſhipped the Thunder and Lightning, with many other things too numerous to mention.

CHAP.

CHAP. X.

The Works of the Viſible Creation demonſtrate the Exiſtence of a SUPREME BEING—*From whence Superſtition and Idolatry ſprang—Atheiſtical, Superſtitious, and Idolatrous People exhorted to ſtudy Philoſophy.*

THAT there is a *Supreme Being* of *infinite wiſdom* and *power*, that created, upholds, preſerves and governs the univerſe, is evident by the ſyſtems of worlds, the revolutions and rotations of the heavenly bodies, and the contents of our terraqueous globe; for all demonſtrate his exiſtence, omnipotence, omniſcience, and omnipreſence; who is juſtly named the King Eternal, Immortal, and Inviſible, as he is King of kings, and Lord of lords, rules over all, is from everlaſting to everlaſting, the ſame yeſterday, to-day, and for ever.

This infinite and incomprehenſible Fountain of life and motion is an Inviſible Spirit: hence the idolatrous nations have become ſo vain in their imaginations, that they have taken the Works of the Creator, for the Creator himſelf; have paid adoration to the ſun, moon and ſtars; birds, beaſts, and fiſhes; and to dumb idols, made of gold, ſilver, wood, and ſtone, which can neither hear,

hear, ſee, feel, nor walk, as they are void of ſenſe, life, and motion. Thus have the Heathens changed the truth of God into a lie, and worſhipped and ſerved the creature more than the *Creator*, who is bleſſed for ever. Amen!

Beſides this vanity of worſhipping the works of the Almighty inſtead of himſelf, another has prevailed in places where the knowledge of the true God has in ſome meaſure been made known. It is an introduction of a great maſs of formality, ſuperſtition, ceremonies and orders into the modes of worſhip, which are entirely needleſs. This has been a great burden to the people, has tended to keep them in vaſſalage and ſlavery, and to make them have erroneous notions concerning God and the things of Religion. Theſe impoſitions were undoubtedly contrived by deſigning men, to aggrandize themſelves with worldly honours and profits.

I beſeech all that are or may be of an atheiſtical, ſuperſtitious, or an idolatrous principle, to ſtudy Philoſophy, which is the mother of all good arts, as it will teach them that there is a Creator, make them happy in this preſent life, and ripen them for glory in a future ſtate. Acquaint yourſelves, therefore, with this divine ſcience. Survey the heavens and earth; contemplate upon the wonderful works of the viſible creation; trace their phænomena, and inveſtigate their laws; and you will undoubtedly be convinced, that there is a *Supreme Being* of infinite wiſdom and power, that created, upholds, and governs the univerſe. View the ſyſtems of worlds; and conſider of the diſtances, magnitudes, orders,

and

and motions of the heavenly bodies:—the periods of comets; the revolutions and rotations of the primary and ſecondary planets; their directions, ſtations, retrogradations, nodes, excentricities, aphelions, perihelions, heliocentric and geocentric longitudes and latitudes; right aſcenſions, declinations, amplitudes, altitudes, ſemi-diurnal and ſemi-nocturnal arcs; riſings, ſouthings, ſettings, aſpects, conjunctions, oppoſitions, quadratures; eclipſes, tranſits, and occultations:—the quantities, durations, reſt and affections of the ſolar and lunar obſervations; the magnitudes of the apparent diameters of the luminaries:—the courſe of the penumbras; the obumbration of the terreſtrial diſc, and of the lunar rays; the rotation of the ſun upon its axis:—the annual revolution and diurnal motion of the earth; its journey through the ſigns of the zodiac: the equinoxes and ſolſtices: ſpring, ſummer, autumn, winter, day and night:—the diverſities of colours, velocity of the rays of light, expulſion of darkneſs, generation of heat, diſperſion of cold:—the moon's attraction upon the waters, at the times of her apogeon and perigeon:—the ſpring and the neap tides; the ebbing and flowing of the ſea, &c.

View the wonderful formation and contents of the terraqueous globe; its compoſition of earth, air, fire and water; its rocks, mines and minerals; vegetable and animal productions of trees, plants and herbs; birds, beaſts and fiſhes; men, women and children; kingdoms, towns and cities; and the different complexions, languages, religions,

religions, cuſtoms, manners, forms of government, and ſyſtems of laws among the nations.

Behold the wondrous atmoſphere, that environs and compreſſes the globe!—Conſider of its elaſtic powers and mutations; of its expanſion and elevation by heat, and condenſation and depreſſion by cold:—its different currents and motions; as hurricanes, tornados, trade winds, monſoons, gales, breezes, whirlwinds, &c.—how replete it is with clouds and vapours, from which are generated the rain, hail, ſnow, froſt, dew, miſt, fog, &c.—of the cauſe of the rainbow, mock ſuns, meteors, northern-lights, and other phænomena:—of the roaring of the winds, raging of the ſeas, and eruptions of burning volcanos:—of the various prodigies and judgments that are frequent in the world; ſuch as, thunders, lightnings, earthquakes, inundations, wars, famines, peſtilences, &c.

When you have taken an accurate ſurvey, and ſeriouſly contemplated upon theſe objects, you muſt be convinced, that thoſe things could not be formed, put in motion, and conducted in ſuch a regular order and manner, without *a primary cauſe*, or *a Divine Artificer*, endowed with infinite power, wiſdom and ſkill. "For the inviſible things of him from the creation of the world are clearly ſeen, being underſtood by the things that are made, even his eternal power and godhead. The heavens declare the glory of God, and the firmament ſheweth his handiwork."

Beſides the great benefits you will receive from the ſtudy of Philoſophy, in being led into the knowledge

ledge of the *Creator*; it will teach you the nature and utility of the liberal and mechanical arts and ſciences, *viz.* grammar, rhetoric, logic, muſic, arithmetic, algebra, geometry, trigonometry, aſtronomy, navigation, ſurveying, agriculture, trade, commerce, mechanics, architecture, manufactures, magnetiſm, botany, chymiſtry, pharmacy, anatomy, phyſic, ſurgery, hydroſtatics, pneumatics, optics, electricity, &c. All the diſcoveries and improvements in theſe things owe their origin to Philoſophy, which is the very baſis of your happineſs, eaſe and comfort. Without this knowledge, the world would be filled with violence, and its inhabitants brought into a deplorable condition.

Wherever this excellent ſcience has ſhone out in its meridian ſplendour, the clouds of darkneſs and ignorance, that overſpread the minds of many, have been diſpelled. Hence atheiſm, ſuperſtition, and idolatry, have been deſtroyed: the craft of falſe prieſts, witches, wizards, necromancers, conjurers, aſtrologers, and all thoſe kinds of locuſts diſcovered, and the deluded people freed from the burden of their impoſitions. The knowledge of the true God has thus been made known; the idols of the Heathen deſtroyed, the true religion diſcovered, proper modes of worſhip eſtabliſhed, and the way to heaven and happineſs made plain. In a word, Philoſophy is not only the ſource and foundation of abundant uſefulneſs, but of abundant profit and pleaſure. It is the nobleſt ſcience in which the human mind can poſſibly be engaged; a delightful ſtudy, attended with the moſt beneficial

ficial conſequences to the inhabitants of the world. It teaches us to fear the Lord, which is the beginning of wiſdom; and to depart away from iniquity, which is a good underſtanding.

By the cultivation of this divine ſcience, the Aſtronomer is enabled to meaſure the diſtances, determine the magnitudes, calculate the motions, and point out the places of the heavenly bodies: the Geometrician, to determine the boundaries of continents, empires, kingdoms and ſtates: the Navigator, to conduct his veſſel, and meaſure his voyage to the remote parts of the globe: the Phyſician, to preſcribe proper remedies, and cure diſeaſes: the Apothecary, to prepare and compound natural and artificial ſubſtances for medicinal purpoſes: the Divine, to preach orthodox ſermons; and the Lawyer, to conduct, according to the direction of the ſtatutes, laws and ordinances of the country or place in which he reſides. In fine, it enables every one, let his profeſſion be liberal or mechanical, to tranſact buſineſs in the moſt accurate, eaſy, and advantageous manner.

Furthermore, I beſeech you to take a further ſurvey of the works of the *Divine Artificer*, that appear in the viſible creation. Conſider of the generation, formation, nutrition, growth and preſervation of all the different kinds of vegetables and animals:—of the wondrous conſtruction of the human frame; which is compounded of ſolids and fluids, conſiſting of bones, cartilages, ligaments, fibres, membranes, muſcles, glands, tendons, arteries, veins, nerves, teguments, teeth, nails, &c.

—of

—of the chyle, blood, bile, ſaliva, tears, perſpiration, pancreatic juice, mucous milk, ſabaceous humour, cerum, gummi occuli, amygdalæ, gaſtric fluid, lympha, phlegm, ſpiritus animalis, &c.—of the vital, natural, and animal functions: the action of the heart, lungs, and arteries; and of the ſolids and fluids upon each other: the manducation of food, and the deglutition and digeſtion thereof, for the nouriſhment of the body: its muſcular motions and voluntary actions, which conſtitute the ſenſe of ſeeing, hearing, feeling, ſmelling, taſting, perceiving, reaſoning, imagining, remembering, and judging; with all the affections of the mind. Conſider, I ſay, ſeriouſly upon all theſe things, and you will undoubtedly be convinced that they did not come by chance: you will know that you are fearfully and wonderfully made; that there is a *primary cauſe*, a *Divine Architect*, who is the Former of your bodies, the Father of your ſpirits, the God in whom you live, move, and have your being:—you will no longer be like the fool, that hath ſaid in his heart, there is no God, nor like thoſe that follow ſuperſtition and idolatry; but be ſenſible that there is an infinite and an *incomprehenſible Fountain* of *life* and *motion*, by whom all things were created, both in heaven and earth, whether they be viſible or inviſible to us in this mortal ſtate; who requires no worſhip, but that which is performed in ſpirit and truth:—your minds will be exalted, your faculties enlarged, your ideas raiſed, your underſtandings illuminated; and you will join with the ſaints in celebrating

the praiſes of *Him*, who is the only proper *object* of religious *adoration* and *worſhip*; ſaying, "Great and marvellous are thy works, *Lord God Almighty!* juſt and true are thy ways, thou *King of Saints!* Who ſhall not fear thee, *O Lord!* and glorify thy name?"

CHAP.

CHAP. XI.

A Definition of Oppreſſion, Tyranny, Sedition, Treaſon, Rebellion, and Perſecution.—The evil Effects of thoſe Abominations.

OPPRESSION is the laying of ſuch heavy burthens upon the people, that they are unable to bear; and the cruſhing of them, by authority and violence. Thus Pharaoh oppreſſed the children of Iſrael, by putting them under taſk-maſters, and requiring brick without ſtraw.

Tyranny conſiſts in a cruel, violent, and unjuſt government. It is the abuſe of royal power, by depriving the people of their religious and civil rights, by cruelty and injuſtice.

Sedition is the exciting of mutinies, ſtrifes, contentions, diviſions, animoſities, inſurrections, mobs and riots.

Treaſon conſiſts in attempting to kill a king, queen, or a prince; a levying of war againſt them, adhering to their enemies; the coining of bad money, and the counterfeiting of a king's great privy-ſeal. Theſe things are called High Treaſon.

Petty Treaſon conſiſts in a ſervant's killing his maſter; a woman, her huſband; a ſecular or religious man, his prelate or ſuperior, to whom he owes faith and obedience.

Rebellion is a wilful breaking of the laws, by diſobeying the commands of the Almighty, or the good and wholeſome laws of the land; a revolting from the government of a king, and the riſing up in arms againſt a ſovereign.

Perſecution is an unjuſt or violent depriving of people of their civil and religious liberties, by ſcourging, fines, impriſonments, baniſhment, the confiſcation of property, death, &c.

All theſe abominations ought to be ſuppreſſed, wherever they do or may exiſt; becauſe they tend to deſtroy the felicity of mankind, and make them miſerable. Wherever oppreſſion and tyranny reigns, the progreſs of the cultivation and improvement of the arts and ſciences is impeded, the kingdom or ſtate is weakened, and poverty and diſtreſs muſt inevitably enſue. Sedition, treaſon, rebellion and perſecution, are all productive of the ſame calamities, for they involve the people in vaſſalage and ſlavery.

A rebel muſt be a horrid monſter, for he muſt break his oath of allegiance, and expoſe himſelf to a variety of perils and dangers: he has no reſt day nor night, for he is continually afraid of being detected and brought to condign puniſhment; but if he ſucceeds in his attempts to dethrone a king or a prince, or to run off with the government of an empire, or a part of it, then thoſe that adhere to him fall a ſacrifice to his tyrannic laws; and thoſe that have been in oppoſition to his evil conduct, are perſecuted, becauſe they could not in conſcience follow the multitude to do evil. Has not rebellion been the

cauſe

cauſe of all the calamities that have happened in the univerſe?—Was it not a rebellion that caſt the fallen angels out of Heaven, and cauſed them to be reſerved in chains under darkneſs, until the dreadful coming of the great day?—Was it not a rebellion that caſt Adam and Eve out of Paradiſe, and expoſed them to all the miſeries of this life, and that which is to come?—Was it not a rebellion that made Cain a fugitive and a vagabond in the earth?—Was it not a rebellion that cauſed the antideluvian world to be filled with violence, and brought the deluge which ſwept off all excepting Noah and his family, who were loyal ſubjects?—Was it not a rebellion that brought that ſhower of fire and brimſtone upon Sodom and Gomorrah, which deſtroyed thoſe cities? and in a word, has not rebellion been the cauſe of all the calamities that have befel the human race ſince the creation of man?

A rebel is a tranſgreſſor of the laws: therefore, all oppreſſors, all tyrants, all evil ſeducers, all traitors, and all perſecutors, are rebels; becauſe their conduct is repugnant to the commands of the Great Governor of the univerſe.

The conduct of a rebel is not like a rational creature, but like a roaring lion, tearing tiger, devouring wolf, and a raging bear; violence and oppreſſion, carnage and deſolation, poverty and diſtreſs, vaſſalage and ſlavery, are the things which he promotes. He carries on his abominations under a cloak of religion and liberty, diſturbs people in their buſineſs, robs them of their property, and takes away the lives of the innocent.

He is a curſe upon earth, a judgment to the human race, and a child of the devil. Hence indignation and wrath, tribulation and anguiſh, will be the reward of ſuch workers of iniquity.

Let all rational people remember, that rebellion is an abominable ſin; that it is pregnant with every evil work, and that it is like the ſin of witchcraft; that it brings a train of judgments upon the human race, deſtroys the public tranquillity, and makes mankind miſerable. Let them have no correſpondence with thoſe diſturbers of the peace; but labour to ſuppreſs rebellion in all its various forms, wherever it may ſpring up. Let them fear GOD, honour the King, and thoſe in authority; and live peaceable and quiet lives, in all godlineſs and honeſty; for the wrath of the Lord is againſt them that do evil.

CHAP.

CHAP. XII.

Definition of LIBERTY—*All have a right to it, but ſome deprive themſelves of that right by their own conduct, and ſome by the conduct of others—Of the Duty of Nations—The evil Effects of bad Conſtitutions—Of the French Revolution—The happy Condition of the Britiſh Empire.*

AS Liberty conſiſts in the free exerciſe of our religion, the enjoyment of our rights, and the profits of our labour, with the protection of our perſons and properties, it is a privilege of an immenſe value: and as it is the natural right of every man, it is our indiſpenſible duty to ſeek after it, whenever we are deprived of its benefits. But we find that many deprive themſelves of liberty by their own evil conduct—by breaking the good and wholeſome laws of the land, by doing things diſhonourable to the Creator, and injurious to mankind. Thus thieves, robbers, murderers, &c. deſtroy their own freedom by their vicious behaviour; and expoſe themſelves, not only to confinement, but to more ſevere puniſhments.

We alſo find, that many are deprived of liberty by the inhuman conduct of tyrants, who oppreſs and perſecute thoſe over whom they have uſurped dominion and power, by taking from them the liberty of conſcience, and loading them with burthens which they are unable to bear.

It is the duty of every nation to guard againſt all theſe evils; and from hence ariſes the neceſſity of having a good conſtitution and ſyſtem of laws in every kingdom or ſtate, binding upon all ranks, orders and degrees of men. Hence alſo ariſes the neceſſity of having kings, counſellors, governors, magiſtrates, and other officers appointed, for the adminiſtration of juſtice, and the preſervation of public tranquillity.

Various conſtitutions and ſyſtems of laws have been framed and eſtabliſhed amongſt different nations; and where ignorance and ſuperſtition have reigned triumphant, the conſtitution and laws have been very deficient, ſo that things have been eſtabliſhed and practiſed that were repugnant to the principles of juſtice and humanity. What numerous multitudes have been maſſacred for a difference of opinion in matters of religion and modes of worſhip! And how many thouſands have worn out their days in vaſſalage and ſlavery, becauſe laws have been made contrary to the requiſitions of the great law of Reaſon! But whenever the minds of the people are illuminated, and the clouds of darkneſs, ignorance and ſuperſtition, are diſpelled, the ſpirit of Liberty breaks forth like the ſun in its meridian ſplendour; the conſtitutions are altered, oppreſſive laws aboliſhed, the bands of tyranny and oppreſſion are broken aſunder, diſtreſſed objects are diſcharged from confinement, the liberal and mechanical arts and ſciences thrive and flouriſh, and all enjoy thoſe liberties which are the natural right of every man.

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The illumination of the minds of the people in France, has been productive of the great and glorious Revolution; of the forming of a new conſtitution, the enacting of new laws, and the aboliſhing of thoſe things that were repugnant to the intereſt and proſperity of the kingdom. How pleaſing muſt it be to ſee both the King and the National Aſſembly unite together in eſtabliſhing the new conſtitution, and in promoting whatever may conduce to the good of the nation, and benefit of mankind in general! May the flame of Liberty, like the refulgent beams of the ſun, be extended over the face of the whole globe; and may all nations partake of the great and glorious bleſſings of natural freedom!

And with pleaſure we recollect, that once in the *Britiſh Empire*, the inhabitants, fired with the love of Liberty, drove ignorance, darkneſs, and ſuperſtition before them; made a glorious ſtand for their rights, and were thereby brought into a happy ſituation. We are now bleſt with a good King, with good rulers, and with a good conſtitution and ſyſtem of laws: here a man enjoys a free toleration of religion: here he is rewarded for his labour: here he is protected in his perſon and property: here agriculture, navigation, trade, commerce, architecture, and the manufactories, thrive and flouriſh; and the nation has arrived to an inconceivable pitch of grandeur and affluence. Our conſtitution, being pregnant with a variety of privileges, is admired by diſtant nations: foreigners come from afar, and find ſhelter and protection, liberty and freedom, under our government.

CHAP.

CHAP. XIII.

The Great CONSTITUTION *of* LIBERTY, *founded upon the Principles of Juſtice, and the Laws of Humanity.*

EVERY conſtitution and ſyſtem of laws ought to be conſtructed upon the principles of juſtice and humanity, which will enſure the rights of a King, and the peace, liberty, and happineſs of his ſubjects. I ſhall therefore beg leave to obſerve,

1. That every man has a legal right to perform religious worſhip according to the dictates of his conſcience, at ſuch times and places as ſhall be moſt agreeable to himſelf; providing he doth not injure others in their perſons, characters, or properties.

2. That it is unlawful to perſecute any of the human race, for a difference of opinion in matters of religion or modes of worſhip.

3. That public teachers are needful to inſtruct people in the principles of religion and morality.

4. That good rulers, both in church and ſtate, ought to be reaſonably rewarded for their ſervices out of the public funds, and empowered to remove officers for male-conduct; and, by and with the advice

advice and consent of the body corporate, to expel members for vicious practices.

5. That the freedom of speech, and the liberty of the press, are the natural rights of every man, providing he doth not injure himself nor others by his conversation or publications.

6. That legislative and executive officers, consisting of kings, counsellors, governors, judges, magistrates, representatives, and other rulers, are necessary to make and execute laws for the preservation of the public tranquillity in empires, kingdoms, and states.

7. That it is unlawful for rulers to make and execute laws repugnant to those of the Great *Governor* of the universe, or destructive to the peace and prosperity of the community at large.

8. That the people have a right to chuse and send delegates to represent their state and condition in a legislative assembly.

9. That a legislative body ought to consist of a mixture of monarchical, aristocratical, and democratical governments; and be divided into three branches, as that of a King, Lords, and Commons.

10. That each branch ought to have a negative voice on the other branches; and no bill ought to be passed into a law without the advice and consent of, at least, two thirds of the members of two of the branches of the legislature.

11. The legislators ought to meet once in a year, and as much oftner as the circumstances of the nation may require, at such times and places as may be most convenient.

12. That

12. That the people have a right to petition the legiſlature for a redreſs of grievances.

13. That every branch of an empire ought to be ſubject to the ſupreme legiſlative head of a nation: to render all proper honour and obedience to the King, and to all in authority, and to be ſubordinate to the good and wholeſome laws of the land.

14. That a King ought to be conſidered as the firſt ſupreme legiſlative and executive officer in a kingdom, and to be empowered to grant pardons to criminals whenever it may be needful. He has a right to a free liberty of conſcience; to protection in his perſon, character, and property; to rule and govern his people according to the conſtitution, ſtatutes, laws and ordinances of his realm; to that honour and obedience that is due to perſonages in ſuch an exalted ſtation; and to ſuch a revenue as his circumſtances may require, and his ſubjects be able to raiſe.

15. That no man ought to be choſen into office, unleſs he is endowed with wiſdom and knowledge, and can be well recommended for good works and pious actions.

16. That it is lawful to confer titles of honour upon, and to give rewards to ſuch perſons as may merit them by their vigorous exertions and good conduct.

17. That legiſlators ought to be exempted from being arreſted for debt, whilſt they are paſſing to, remain at, and are returning from the legiſlative aſſemblies, becauſe an arreſtment would impede the public ſervice.

18. That

18. That courts of juſtice ought to be eſtabliſhed, and juſtice adminiſtered to all without reſpect of perſons.

19. That every man ought to be allowed a trial by jury.

20. That thoſe under confinement ought to know what they are confined for; who their accuſers are; not be compelled to bear witneſs againſt themſelves; be allowed to bring evidence, with the benefit of counſel; and ſhould not be condemned, unleſs found guilty by the teſtimony of two or three credible witneſſes.

21. That exceſſive bail ought never to be demanded, exceſſive fines required, nor exceſſive puniſhments inflicted.

22. That criminals under confinement ought to have no puniſhment laid upon them, but that which is requiſite for the ſecuring of their bodies; unleſs, after they have been found guilty, it is ordered by the judges, agreeable to the laws of the land.

23. That no man ought to be impriſoned for debt, providing he gives up his property to his creditors, and has not waſted his time in idleneſs, nor his eſtate by intemperance, gaming, or any other vicious practice.

24. That perſons falſely impriſoned, ought to be immediately liberated, and to have ample ſatisfaction for the injuries they have received; and thoſe guilty of the abomination of confining the innocent, ought to be ſeverely puniſhed for their atrocious conduct.

25. That

25. That every one who is a ſubject of taxation, ought to be allowed to vote for a repreſentative, providing he is twenty-one years of age.

26. That every man ought to be taxed in proportion to his abilities.

27. That the power of levying and collecting taxes, duties, impoſts, &c. with that of coining money, emitting bills of credit, borrowing money for the public uſe, entering into treaties and alliances with foreign powers, appointing, commiſſioning, and ſending of ambaſſadors, miniſters, conſuls, meſſengers, &c. belongs to the legiſlature.

28. That ſuch treaties ought to be eſteemed as a part of the law of the land; kept inviolate; and whenever they are broken, reſtitution ought to be made to the party injured.

29. That as money is a defence as well as wiſdom, a circulating medium ought to be eſtabliſhed, conſiſting of gold, ſilver, copper, and bills of exchange. Its credit ſhould be kept up, and but one currency eſtabliſhed in a kingdom.

30. That churches ought to be built for the accommodation of the people when they perform religious worſhip; public ſchools, colleges, academies, and univerſities erected, for the promotion of literature; hoſpitals founded, for the reception of the ſick; work-houſes for the employment of idle perſons; and priſons for the ſecuring of thieves, robbers, murderers, and other felons;—and ſocieties inſtituted, for the purpoſe of making further diſcoveries and improvements in the liberal and mechanical arts and ſciences.

31. That

31. That cuſtom-houſes, poſt-offices, and poſt-roads, ought to be eſtabliſhed in every kingdom and ſtate.

32. That weights and meaſures ought to be alike in every part of an empire, if not through the world.

33. That all foreigners ought to be treated with hoſpitality, and protected by the laws of the land.

34. That the heirs of an eſtate ought not to be diſinherited by reaſon of the ill conduct of their parents; nor thrown out of their poſts of honour and profit, in conſequence of the unlawful behaviour of their relations.

35. That every author ought to have the benefit of his own productions, whether they be upon theological, mathematical, philoſophical, phyſical, mechanical, or any other ſubject.

36. That all officers, whether eccleſiaſtical, civil, or military, with every other perſon, ought to guard againſt ſedition, treaſon, rebellion, and every thing that may tend to ſow diſcord amongſt brethren, deſtroy the public tranquillity, and make mankind unhappy.

Thus have I framed a CONSTITUTION, which appears to me to be according to the law of reaſon, and the dictates of ſound policy. Perhaps ſome things have eſcaped my obſervation, that might juſtly be added. However, I believe, that one calculated and eſtabliſhed upon theſe principles, would ſecure the rights of kings, and thoſe of their ſubjects, which is all that any rational perſon can deſire.

CHAP.

CHAP. XIV.

Of the Impoſſibility of framing a Conſtitution that will pleaſe every-body—Anecdote of two Iriſhmen—The Rights of Kings, and Liberties of their Subjects, ought to be ſecured by a good Conſtitution and Syſtem of Laws.—Story of the Parſon's Wig—Thoughts on the Mode of chuſing Repreſentatives—The Happineſs of the People ought to be promoted.

I CANNOT expect my political ſentiments will pleaſe every body, let them be ever ſo well founded on reaſon; for there are ſuch a number of diſcontented mortals in the world who luſt after dominion and power, and ſuch multitudes that do not wiſh to be under any government at all, that ſhould the *Angel Gabriel* frame and ſend a *Conſtitution* from *Heaven*, ſome would be found to murmur at it.

Many are of ſuch a craving temper and diſpoſition, that they would engroſs the whole world to themſelves, and rule and govern it, were it in their power. The ambition of ſome men is almoſt boundleſs.—This brings to my mind an anecdote of two Iriſhmen, who being intoxicated with liquor at an inn, began to think that they were maſters of the whole globe, and agreed to divide it equally between themſelves: but as the intoxication increaſed,

creaſed, one of them, who was of a very craving diſpoſition, concluded that he had the beſt right to the world, and ſwore that he would have it all to himſelf; whilſt the other contended, that he was juſtly entitled to one half of it, and wanted no more than his right. At laſt they ſettled the matter by a number of heavy blows; but whether the world was to be equally divided, or whether one was to have it all, and the other no part of it, I have forgot, although I had my information from a gentleman who was witneſs to this very ſingular conteſt, and knew ſomething of our *wiſe* combatants.

The ſame temper and diſpoſition amongſt others, has prevailed too much in the world; and has ſometimes broke out into ſuch acts of violence, that kings and nobles have been deprived of their rights, and oftentimes the people at large of theirs. A monarch may crave the eſtates, and all the profits of the labours of his ſubjects: and, on the contrary, the people may crave thoſe things that legally belong to their king; and, by acts of violence and injuſtice, both may loſe their rights. —But, theſe extremes ought to be carefully guarded againſt; and the rights of kings, and thoſe of their ſubjects, ſecured by a *good Conſtitution* and ſyſtem of laws. Is it not ſtrange that mortal men, who can abide but a very ſhort time in this troubleſome world, ſhould be ſo craving as to luſt after more riches, honours and profits, than they can enjoy, or that can poſſibly do them any good?

" Why doth the miſer all his cares employ,
" To gain thoſe riches that he can't enjoy?"

When the powers of legiſlation are lodged altogether in one man, and the nobles and other inhabitants of a country are ſhut out from having any voice in the making of laws; or when the powers are in the nobles, or in the people only, it will naturally generate a ſpirit of diſcontent amongſt thoſe who have not a ſhare in that power. Will not a king feel very uneaſy, if he has no part of the legiſlative power? Will not the nobles be diſcontented, if they have no part of it? And, will not the people murmur, if they have no ſhare in the ſame? Therefore, to prevent uneaſineſs, and promote a ſpirit of union and harmony in empires, kingdoms and ſtates, it is beſt, in my opinion, to have a mixture of monarchy, ariſtocracy and democracy in every legiſlative body, like the parliament of Great-Britain.

The things of this world are ſo mutable, that we cannot foretel what conſtitutions may be eſtabliſhed hereafter. And although an aſtronomer can determine the revolutions and rotations of the rambling planets, and point out the directions, ſtations, and retrogradations of the luminaries of heaven, for thouſands of years to come; yet he cannot foretel what will be done hereafter, even in his own country, or in any other part of the globe, in regard to the overturning, altering, framing, and eſtabliſhing of conſtitutions, kingdoms, or ſtates. It is probable that there may be alterations in theſe things; and perhaps the future generations may have a greater knowledge in politics than the preſent, and be able to frame better modes of government than the nations are in this age:

age: for, if the knowledge of philoſophy increaſes in the world, and the glorious ſun-ſhine of liberty and freedom breaks forth, the clouds of darkneſs and ignorance will be diſpelled; atheiſm, ſuperſtition and idolatry will wear away; and the people be freed from thoſe burthens and impoſitions that involve many, in the dark and benighted corners of the globe, in vaſſalage and ſlavery! It is probable they will diſcover that ſome conſtitutions have been deficient, and be able to correct and amend whatever has been amiſs.

But many are of ſuch a changeable temper and diſpoſition in the preſent age, that they would be for ever altering a conſtitution that is conſtructed in the beſt manner, and continue their alterations 'till it is wholly ruined, like the *Miniſter's wig*; an account of which I will juſt relate as I received it.

A *Reverend Divine* having loſt his hair in his old age, bought a large white wig to cover his naked head: But it diſpleaſed his auditors to that degree, that they had a church-meeting on the ſubject, and concluded that the wearing of ſuch a large wig was idolatry; and accordingly ſent a committee to their *Reverend Paſtor*, to acquaint him that his congregation was much diſpleaſed, &c. He told them, that he did not wiſh to have any uneaſineſs about the wig; and if they thought it was too large, they might make it ſmaller; and delivered it to the committee, who laid it before the congregation, to have it altered; when one cut off a lock of hair in one place, and another in another, &c.

till the wig was utterly ſpoiled. At length they agreed that it was fit to be ſeen in the pulpit; whereupon it was returned to the owner, who ſaid, it could not now be *idolatry* to wear the wig, for it had not the *likeneſs* of any thing in *Heaven* or *Earth*.—Juſt ſo it is with a conſtitution that is conſtructed in the beſt manner: it will not ſuit every one; and if it is clipped by every diſcontented mortal, it will be wholly ruined, *like the Reverend Divine's wig*.

There is a vanity that I have ſeen under the ſun, and have often wondered that it has not been ſuppreſſed in this enlightened age—I mean the unjuſtifiable mode of chuſing legiſlators in ſome parts of the globe.

When the people are called upon to chuſe their repreſentatives, a number will put up in ſome public place, when perhaps not more than one is to be choſen. There ſcaffolds muſt be erected, publications ſent forth, mobs convened day after day, harangues delivered, and many thouſands ſpent to induce the freeholders to chuſe their delegates—when the whole of the work might be completed in half a day, by the people's aſſembling at the places appointed for the performance of religious worſhip, and carrying in their votes, in writing, to the clerk of every pariſh, who might eaſily ſend them to ſome perſon that might be authoriſed in the county to receive and count the ſame, and to promulgate who has the greateſt number, or who the people have choſen for their legiſlators. Would not this mode take

up

up leſs time, be much eaſier to the people, and much more commendable, and beneficial to the community, than to have the freeholders fatigue themſelves by coming a great diſtance, waſting their time by being kept from their employments day after day, quarrelling and wrangling about the choice of a repreſentative? or, than to have the candidates for ſuch places waſte their eſtates by keeping open houſes, giving away victuals, drink, ribbands, cockades, &c. till they have ruined themſelves, families, and creditors?

As it is our indiſpenſible duty to promote the happineſs of mankind, I have mentioned things in the preceding chapters, which I hope will be inſtrumental in promoting their peace and proſperity.

In ſome parts of America, the people have choſen their repreſentatives in the way that I have diſapproved; and in others, in the way that I have recommended. Candidates often merit the attention of the public by their good conduct, and by publications ſpread abroad by their friends; and are frequently choſen into office that way, without being put to the expence of keeping open houſes, and of troubling the people to aſſemble day after day.

CHAP. XV.

The Epiſtle of the AUTHOR—*A Deſcription of the Road to Liberty.*

TO all people, nations, and languages, that dwell in all the world.

2. Grace, mercy, and peace be multiplied unto you.

3. It hath ſeemed good unto me to promulgate this *Epiſtle*, and to make known thereby the genuine deſcription of the road which leads to that liberty which is deſtitute of licentiouſneſs.

4. To mention thoſe things that will make you comfortable in this life, and conduct you in the way to everlaſting felicity in the realms of immortal bliſs and happineſs.

5. I beſeech you, therefore, to remember, that atheiſm, ſuperſtition, idolatry, ſedition, treaſon, rebellion, covetouſneſs, theft, robbery, murder, intemperance, debauchery, bad language, gaming, idleneſs, and all kinds of vice, will carry you out of the road that leads to liberty, and involve you in deſtruction and miſery.

6. Shun, therefore, all kinds of vice and immorality, and walk in the pleaſant paths of piety and virtue, which will eſtabliſh your freedom on a permanent baſis.

7. Let

7. Let thoſe who doubt the exiſtence of a *Supreme Being;* and thoſe who worſhip the ſun, moon, or ſtars—the birds, beaſts, or fiſhes—or idols made by the hands of men, contemplate upon the works of the viſible creation; which will naturally convince them of their error, and excite them to pay homage and adoration to HIM, who created, upholds, and governs the univerſe, and is the only proper object of religious worſhip.

8. Avoid contentions, diviſions, and animoſities, which too frequently terminate in bloodſhed and devaſtation.

9. Follow peace with all men; break not your oaths of allegiance, fulfil your obligations; fear GOD, honour the King, and thoſe in authority; and be ſubordinate to the good and wholeſome laws of the kingdom or ſtate in which you reſide.

10. Walk honeſtly; render to all their dues; pay your debts, and your proportion of the public taxes.

11. Be kind to the poor and needy, relieve the oppreſſed, viſit the ſick, bury the dead, feed the hungry, clothe the naked; and ſhew acts of kindneſs, charity, and humanity to ſtrangers, captives, and priſoners.

12. Love yourſelves, your families, and your neighbours; do good to your enemies; avenge not yourſelves.

13. Be not high minded in proſperity, but patient in adverſity.

14. Cultivate and improve the liberal and mechanical arts and ſciences, and promote every thing that may tend to make mankind happy.

15. Be careful of your credit, your time, and your money; ſhun bad company, uſe not bad language, be not idle, waſte not your eſtate in ſuperfluities, be temperate and exemplary in your lives and converſations.

16. Shun the pollutions that are in the world, ſuppreſs that which is evil; do as you would be done by, and continually follow that which is good: then will ye be in the road that leads to liberty.

17. Grace, mercy, and peace be multiplied unto you all. *Amen.*

This EPISTLE of the AUTHOR, was written from *Anglia*, to the inhabitants of the world.

CHAP.

CHAP. XVI.

A Definition of ELECTRICITY—*Who made Diſcoveries in the Science—How Buildings, Veſſels, &c. ought to be furniſhed with Rods to carry off the Electrical Fluid—Of the Electrical Kite—Whether it is dangerous to wear Hair-pins, &c. in a Thunder Storm—The wonderful Effects of Lightning—Communication of Mr. Woodward—Of Animals killed by Lightning—Where it is ſafeſt to be in a Thunder Storm—The Sea an Electric Machine—What Diſeaſes may be cured by Electricity.*

ELECTRICITY is ſaid to be an attraction without magnetiſm. It is the attracting and repelling of very light bodies, when the attracting body is rubbed or chafed.

The firſt idea of Electricity was given by Ottoguericke, A. D. 1647; and the electrical ſhock was firſt diſcovered at Leyden, in 1746, by Cuneus; and in 1756, it was found that it would ſet ſpirits on fire.

The electrical fluid ſeems to be in all bodies in a greater or a leſs degree. Some things will attract and conduct it, but others repel its force. Glaſs, hair, ſilk, and gums, are called electrics, or non-conductors; but metals, water, green wood, and

and moſt animal and vegetable ſubſtances, are non-electrics, or conductors.

Dr. Benjamin Franklin, of Philadelphia, made diſcoveries and improvements in Electricity. He found that an electrical kite, and pointed rods, would attract and conduct the electrical fluid. On making his diſcoveries known, he was made a Fellow of the Royal Society, and was afterwards honoured with a diploma from the univerſity of Oxford in England, conſtituting him a Doctor of Laws.

Dr. Prieſtley, it is ſaid, has alſo made great improvements in Electricity; and ſome ſuppoſe, that they are equal to thoſe made by Doctor Franklin.

Great advantages have already been derived from thoſe diſcoveries and improvements, on account of the preſervation of buildings, and many people in thunder-ſtorms. All towers, ſteeples, other buildings, and ſhips, ought to be well furniſhed with pointed rods, to attract and conduct the electrical fluid; though ſome are ſo ſuperſtitious as to ſuppoſe it is not lawful to try to defend thoſe things againſt the violence of the lightning; but they may as well ſuppoſe that it is unlawful to brace a houſe, and defend it that way againſt the violence of the wind; for the wind and the lightning are both ſent by the *Almighty*.

Small iron or ſteel rods, with ſharp points, are ſaid to be the beſt conductors. The electrical fluid will make its way to thoſe that are the neareſt, and it chuſes thoſe that are of the beſt kind. The

rods

rods ſhould be placed in ſuch directions as to convey the lightning into the ground from the buildings, or into the water from veſſels.

A kite ſent up into a thunder cloud by a wire, having a key tied to its end, and held by a ſilk ribband, will attract the electric fluid from the clouds, and conduct it to the ground in a beautiful and ſurprizing manner.

Some ſuppoſe it is dangerous to wear hair-pins, jewels, necklaces, buckles, &c. in a thunder-ſtorm, becauſe thoſe metals attract the electric fluid; but I have ſeen it demonſtrated, where lectures have been delivered upon Experimental Philoſophy, that hair-pins and other metalics may, if placed in proper directions, preſerve the lives of people, by conveying the lightning from their bodies and limbs. I have been credibly informed, that a man in America had his ſhoe-buckles melted on his feet by a flaſh of lightning, and that he received no other damage.

The lightning has ſtrange effects upon minerals, vegetables, and animals: ſometimes it will melt metals, at others it will not; ſometimes it ſets trees, buildings, &c. on fire, at others it will not; ſometimes it burns animals, at others it will not; ſometimes it tears things to atoms, at others it leaves them whole; ſometimes it breaks every bone in an animal to fine pieces, leaving the fleſh and ſkin whole; at others it has no ſuch effect: ſometimes it tears their fleſh to atoms, and leaves their bones ſound; ſometimes they are killed, and no ſigns of a bruiſe can be found in their bodies

or

or limbs. When they are killed in this manner, it is ſuppoſed that their breath is taken away by the force of the lightning, as it is ſometimes from others by the force of a cannon-ball, when the body appears to be unhurt.

The lightning flies in all directions: ſometimes it will run in a horizontal courſe, cutting down large trees, &c. It often falls perpendicular, oblique, zigzag, &c. I have known it ſtrike the ground, and then run upwards, tearing all before it. When it ſtrikes a ſtick of hewed timber, it will follow the grains to where they have been cut off; then it will leave the ſtick, and paſs on to where they have been cut off in another place; there it will enter, and tear the timber to the heart, if the grains lead to it. Of ſuch things I have been an eye-witneſs.

The Hon. Bazalel Woodward, Eſq. vice-preſident, and profeſſor of the mathematics and natural philoſophy at Dartmouth College, in the State of New Hampſhire, gave me an account of a very remarkable phænomenon which happened juſt by his houſe.—Two large pine-trees, which I viewed myſelf, were both ſtruck at the ſame inſtant with the lightning, at about eleven in the evening. They ſtood near 66 yards from each other. One of them was a dry, and the other a green tree. The lightning ran from their tops to their roots, and tore out near a quarter part of each tree, which was ſpread round in fine ſplinters. Mr. Woodward ran immediately from his bed to the other ſide of the room, to comfort one of his children

that

that cried on being ſurprized at the noiſe of the thunder; and ſeeing a light ſhine through the window, ſuppoſed his barn was on fire. He therefore ran to the window, and, behold, the dry tree appeared to be on fire from the top to the bottom! and it emitted ſparks in different directions, ſome horizontal, ſome oblique, others perpendicular; ſome aroſe to a great height above the tree, when all at once the light diſappeared; and that which is very remarkable, is, that the tree was not burnt in the leaſt in any place. He aſked my opinion upon this phænomenon; and I ſuppoſed, that the tree was highly charged with electrical fluid, and that it burſt through the bands of its confinement, and emitted thoſe coruſcations till the fluid was exhauſted and diſperſed in the atmoſphere without ſetting the tree on fire.

Animals killed with lightning ſwell to an enormous ſize. An ox killed that way, was found ſtanding on his legs the next day, much ſwelled. A man was killed in one church, and a woman in another, ſitting in an erect poſture, and remained ſo after they were dead. I have had the care of three patients that lived at a great diſtance from each other, who were ſtruck with the lightning. The firſt was thrown into hyſteric fits, the ſecond conſiderably burnt, and the third was ſtruck with numbneſs: but they all recovered. Thus rapid is the force, wondrous the operation, and dreadful the effects of this ſubtile electric fluid.

It is ſuppoſed to be ſafer to ſit in the middle of a large room during a thunder-ſtorm, than it is to be

be near the ſides, or in a ſmall apartment, becauſe the lightning frequently runs on the ſides of a building. The windows aught to be ſhut; for, a perſon ſtanding with his cloaths dry, in the open air, in a room, under a ſhed or a tree, will be in great danger of attracting the electrical fluid: but he is not in ſo much danger if his cloaths are wet, becauſe the water is a conductor.

The earth and waters are full of the electric matter, as well as the atmoſphere; and it is ſuppoſed that there is enough in the ſea to conſume it, were it put in motion. As water is a conductor, and ſalt a non-conductor, the ſea may be called a huge electrical machine; for when it is agitated by the wind, it collects fire on its ſurface from beneath: hence it appears in the night as though it was on fire. A cloud, therefore, raiſed from a rough ſea, contains more electric fire than one raiſed from the land or a calm ſea. Hence, if two ſuch clouds meet, that which is the higheſt charged will diſcharge itſelf into the other by a flaſh of lightning, which will reſtore the equilibrium. This fire clearing the air, the adjoining air will ruſh in with a report called thunder. If a cloud highly charged, is attracted by a mountain, tower, ſteeple, houſe, or tree charged in a leſs degree, it will diſcharge its contents, tearing whatever obſtructs its force: hence appears the need of wires to attract and convey the fluid.

I have neither time nor room to give any long hiſtory of Electricity, nor even a deſcription of the electrical machines and experiments that I have

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ſeen where I have attended lectures upon Experimental Philoſophy; ſhall therefore only obſerve, that a ſpectator would be ſurprized, were he to attend ſuch lectures, at the wonderful diſcoveries and improvements that have been made in this ſcience in the preſent age.

Electricity is ſaid to be beneficial in agues, St. Anthony's fire, loſs of ſight from a *gutta ſerena* and other cauſes, extravaſated blood, bronchocele, chloroſis, coldneſs of the feet, conſumptions, contractions of the limbs, cramp, deafneſs, dropſy, epilepſy, *fiſtula lachrymalis*, ganglions, gout, gravel, headach, hyſterics, inflammations, king's evil, leproſy, mortifications, palſy, peripneumony, pleuriſy, rheumatiſms, ringworms, ſcalds, *ſciatica*, ſhingles, ſprains, ſurfeits, toothach, tumours, and St. Vitus's dance.

But it is hurtful when the pulſe run high, and alſo to pregnant and ſuckling women, and to unborn children. It is very prejudicial in all venereal caſes, becauſe it increaſes the *momentum* of the blood.

In intermitting caſes, the patient ſhould be electrified when the pulſe are at the loweſt; and none ought to apply this remedy without the advice of a ſkilful phyſician, becauſe it may convey a diſorder to every part of the human body, and do much damage thereby.

When the pulſe are higher than in a ſtate of perfect health, electricity muſt be entirely omitted: but when the body is in a proper condition, diſeaſes may be cured by the electrical fluid, when other remedies fail.

CHAP.

CHAP. XVII.

Of the Cauſe of THUNDER, LIGHTNING, EARTHQUAKES, *and* INUNDATIONS—*A Table of remarkable Earthquakes, and the Places and People that have been ſwallowed up.*

AS Thunder is only the report of the Lightning, it is needleſs to ſay much upon that ſubject: What we have to do, is to point out the cauſe of the Lightning.

In the preceding chapter we mentioned, that "when two clouds meet, that which is the moſt highly charged with the electrical fluid, will diſcharge itſelf into the other by a flaſh of lightning, which reſtores an equilibrium. This clearing the air, the adjoining air ruſhes in with a report called Thunder." Let us now obſerve, that the Lightning is produced by ſulphureous ſteams exhaled by the heat of the ſun, and the nitrous acids or ſalts floating in the air, which, combining together, generate heat by fermentation; and the violent action and great rapidity of the motion of the different currents of air upon the combuſtible compoſition, makes it take fire, and cauſe thoſe dreadful exploſions we call thunder-claps.

Hence,

Hence, then, the heat or fire muſt proceed from the antiperiſtaſis which exiſt between the particles, and their friction, or rubbing againſt one another. We find, that *Aqua Fortis*, and the filings of copper, will generate heat; that the oil of caraway-ſeed, poured on the compound ſpirits of nitre, will kindle immediately into a flame, and cauſe a prodigious exploſion; and that the flowers of ſulphur, mixed with an equal quantity of the filings of iron, will produce a blaſt. Hence, if twenty pounds of each are mixed into a firm paſte with a little water, and the compoſition is buried four or five feet under ground, in ſix or ſeven hours the earth will tremble, crack, ſmoke, open her mouth, and vomit flames of fire. A large quantity of ſuch matter would make a burning volcano; if it ſhould burſt under the ſea, it would produce a water-ſpout; if in the clouds, thunder and lightning. This is called an Artificial Earthquake, &c.

I have heard thirteen Earthquakes in America, and have obſerved, that the ſound of ſome reſembled the noiſe of thunder; ſome, the roaring of wind; ſome, the running of water; and ſome, the burning of fire. Hence I concluded, that there are different kinds of Earthquakes, produced from various cauſes. Thoſe that I have felt, all happened in fair weather, and when the wind did not blow: excepting one, which made a noiſe like heavy thunder at a diſtance; the ſhock was violent, and the weather very windy and rainy.

They commonly happen in calm, warm, dry, ſultry, or froſty ſeaſons, and are felt both at land

and ſea. Some are confined to narrow limits; others are extended to many countries. Some are gentle in their motions; others are violent, laying all in ruins. A hollow rumbling noiſe rolling in the air, like the roaring of a cannon, precedes the ſhock. They are felt more in high places than in thoſe that are low, and have a greater effect upon ſtone and other ſolid buildings than thoſe of ſlighter materials. Great towns and cities, ſituated on ſeas, bays, rivers, or burning mountains, are the moſt ſubject to Earthquakes. They cauſe the water in wells to become foul; and ſometimes they ſhut up ſome ſprings, and open others. Sometimes they ſwallow up mountains, iſlands, towns and cities; affrighten and deſtroy the birds, beaſts, and fiſhes; men, women, and children. Sometimes the ſea roars, and riſes into billows; and the earth opens her mouth, and vomits flames of fire, with great quantities of water, ſand, ſtones, ſulphur, &c. The atmoſphere is turned red: new mountains and iſlands are thrown up: the rocks are ſplit to pieces; ſome canals of water are filled with earth, whilſt new ones are opened. Sometimes the bells in churches ring; the tops of ſteeples and chimneys are ſhaken down; the beaſts of the field, and the fowls of the air, cry out; whilſt the inhabitants of the earth are filled with lamentation. Theſe are the works of the Almighty! He looketh on the earth, and it trembleth; He toucheth the hills, and they ſmoke.

It is ſaid, that Earthquakes have produced pains in the head, back and joints, rheumatiſms, vertigos, hyſteric complaints, and other nervous diſorders,

ders, ariſing perhaps from ſulphureous and other diſagreeable effluvia that iſſues out of the earth, and the frightful appearance of things.

Philoſophers have accounted various ways for the cauſes of theſe dreadful phænomena; as,

1. From ſubterraneous cavities, vaults and canals in the bowels of the earth, ſome of which are filled with wind, ſome with water, and ſome with liquid fires.

2. From ſulphur, bitumen, ſalts, amber, minerals, &c. depoſited in the globe; which, being of an inflammable nature, generate exhalations by fermentation or other cauſes.

3. The motion of the wind and water in the ſubterraneous caverns and canals, may drive the rocks, mines and minerals together with ſuch a rapidity as to cauſe them to emit ſparks that may ſet fire to the ſulphureous, nitrous, and other inflammable ſteams that are of a combuſtible nature, which, wanting vent, produces eruptions, and all the violent and dreadful effects that are frequent in Earthquakes.

4. From ſubterraneous clouds burſting out into lightning.

5. The falling-in of arches weakened by continual ſubterraneous fires.

6. The burſting out of rarefied ſteams of water.

7. The ignition of inflammable exhalations.

8. The violence of the electrical fluid.

In ſome places, the combuſtible matter may find vent without producing any direful effects; but when the ground is tightly condenſed, the inflam-

mable matter will burſt open the gates of its confinement, the ſides of the ſubterraneous caverns will fall together, and down will go mountains, iſlands, towns and cities, if they are ſituated upon ſuch places; and where there are waters contained in ſuch ſubterraneous apartments, they will aſcend, and overwhelm the parts where the mountains, &c. have been ſwallowed up. Hence, new lakes, new rivers, new ponds, &c. are made on the ſurface of the globe.

When new mountains and iſlands are thrown up by the combuſtible matter, a ſufficient quantity of earth and water ruſhes under them, to ſupport them from ſinking, otherwiſe they would naturally ſubſide.

About the year 1749, Dr. Stukeley invented a new hypotheſis concerning the cauſe of Earthquakes, which is what is already mentioned, *viz.* the violence of the electrical fluid. He ſuppoſed that the earth is ſometimes ſo overcharged with it, that it breaks out into the atmoſphere, and cauſes all the dreadful phænomena; that when the earth is highly charged, the touch of a non-electric body, ſuch as a cloud not charged with the electrical fluid, will produce an earthquake; and alſo, that one may be produced from a cloud more highly charged than the earth, if it empties its contents on the globe.

Let us therefore obſerve, that when the electrical fluid in the earth and atmoſphere is in a perfect equilibrium, there can be no earthquake, if this fluid is the cauſe of thoſe commotions; that when

ſuch

ſuch convulſions happen, as ſoon as the terreſtrial and atmoſpherical electric fluid is equally diſperſed, the Earthquakes ceaſe, and all things are at reſt.

It is my opinion, that Earthquakes are produced from various cauſes; but that they moſt frequently happen from the generation of heat, by the fermentation of beds of ſulphur combined with divers kinds of minerals; that the heat increaſes until the combuſtible matter takes fire, and produces thoſe dreadful exploſions, which are ſometimes ſo violent as to cauſe the earth to open her mouth, vomit flames of fire, torrents of water, wind, ſand, rocks, &c. and to ſwallow up mountains, iſlands, towns, and cities.

"In deepeſt caves are beds of ſulphur made,
And in a ſecret fearful ambuſh laid;
When God's avenging hand ſhall touch the train,
Some warn'd devoted city quick is ſlain.
The earth 's convuls'd, her jaws are open'd wide;
Churches with all their lofty ſpires ſubſide;
To Nature's womb they ſink with dreadful throes,
And on poor ſcreaming ſouls the chaſms cloſe!"

I ſhall conclude this Chapter by the addition of the ſubſequent Table of Remarkable Earthquakes and Inundations:

EARTHQUAKES.

	A. D.
Twelve cities overturned in Aſia -	17
Nicomedia, and ſeveral neighbouring cities, ſwallowed up - -	120
One hundred and fifty cities ſwallowed up in Macedonia - - -	357
Fifty thouſand perſons deſtroyed by an earthquake and an inundation in Alexandria	365

	A.D.
Several cities ſwallowed up in Europe	394
Several cities ſwallowed up near Cybyra	417
Several cities ſwallowed up in Paleſtine	419
The walls of Conſtantinople and 17 towers overthrown - - -	446
The city of Antioch almoſt deſtroyed -	458
One at Conſtantinople, that laſted 40 days, and overturned ſeveral edifices -	480
Several cities deſtroyed near Antioch -	526
Four thouſand eight hundred people ſwallowed up at Antioch -	528
One at Conſtantinople -	552
Many houſes overthrown at Rome and Conſtantinople - - -	557
France, Germany and Italy ſhaken, and St. Paul's thrown down at Rome -	801
One through all England -	1090
One at Shropſhire -	1110
One at ditto - -	1116
One at ditto - -	1120
One at ditto, when flames of fire iſſued out of the earth - -	1134
The city of Catania, and above 15,000 people, ſwallowed up -	1137
One that overthrew a church at Lincoln, and ſome others -	1185
A dreadful one in - -	1228
One in Shropſhire - -	1249
One at St. Albans -	1250
A general one, that threw down St. Michael's near Glaſtonbury -	1274
The greateſt in England -	1328

Several

	A.D.
Several churches thrown down -	1382
A very dreadful one -	1426
Another - -	1661
Fifty-four towns and cities, with 60,000 people, ſwallowed up in Sicily	1691
Port-Royal in Jamaica ſwallowed up	1693
Sixty thouſand perſons deſtroyed in Sicily	1693
Near 400,000 people deſtroyed in China	1699
Peru laid waſte by an earthquake, 300 leagues in length, and 90 in breadth	1700
An earthquake at Rome -	1703
One at China -	1718
The kingdom of Chili deſtroyed -	1730
Four provinces deſtroyed in China -	1731
One at Naples -	1732
Two thouſand ſouls, 100 houſes, and five churches, deſtroyed in Ireland	1734
Lima and Callao, with about 3,000 people, ſwallowed up in Peru -	1746
Two in London - -	1750
Four thouſand perſons deſtroyed at Philipoli in Romania - -	1750
Two hundred moſques, and a great part of the city of Alexandria, deſtroyed	1752
Many villages ſwallowed up in Morea	1754
Forty thouſand people deſtroyed at Conſtantinople and Grand Cairo -	1754
Two thouſand houſes deſtroyed in the Iſland of Metylene - -	1755
Quito in Peru deſtroyed -	1755
Liſbon, and 70,000 inhabitants, deſtroyed	1755
Four earthquakes in North-America	1755

	A. D.
One at Azores - -	1757
One at Tripoli - - -	1759
A terrible one in Syria -	1760
Eight hundred and eighty perſons buried in an earthquake at Conſtantinople	1766
One thouſand ſix hundred people deſtroyed at Martinico - -	1767
One at Altdorf in Switzerland -	1774
The city of Gualtimala, and 8,000 families, ſwallowed up -	1774
A dreadful one at Smyrna -	1778
Thirty thouſand people, and the city of Meſſina, ſwallowed up -	1783
Two earthquakes in North-America	1783
Part of Oran in Africa deſtroyed -	1790
Two earthquakes at Cherburg, on the coaſt of France, which deſtroyed many houſes and people - -	1791

The Author is ſorry he is not able to give a fuller account of the numerous Earthquakes that have happened in America: though he has heard thirteen, he has forgot the particular times when ſome of them happened. As he is now in London, and at a great diſtance from America, where his records are, he is incapable of giving a further account at preſent: however, he expects to be able to do it in ſome future edition of the *American Oracle*. Jan. 17, 1791.

Of

Of the Cauſe of INUNDATIONS.

INUNDATIONS are ſometimes cauſed by Earthquakes, and ſometimes by violent ſtorms, which makes the ſea riſe ſo high as to overwhelm the land. When ſtorms are the cauſe, the water riſes higher at the times of the ſpring-tides, than it does at other times. We have no account of a general deluge, excepting that of Noah's flood.

Inundations are frequent in low lands in America, ſituated near the ſea; but I have not heard that many lives have been loſt, neither have I underſtood that many have been loſt in Great-Britain, Ireland, or France: Though at Newcaſtle upon the Tyne, about 120 perſons loſt their lives by an inundation, in 1446—100,000 people were drowned at Dort, in Holland, 1568—72 villages were overflowed in Zealand, and above 20,000 people periſhed, in 1717—1300 were drowned in the ſame country, and there was a dreadful inundation at Peterſburgh, in 1777.

Since I wrote the preceding, I have received the following account, *viz.*—That a terrible Earthquake began on the 5th of February 1663, and raged through all Canada till July following, almoſt every day or night, for a quarter or half an hour at a time. Its effects were horrible; as the mountains claſhed together, and ſome tumbled partly into the river St. Lawrence, and were partly removed to vaſt diſtances, with their trees ſtanding upon them.

CHAP.

CHAP. XVIII.

Of the Number and Cauſe of Burning Mountains—Their terrible Eruptions—What makes Hot Springs.

IN Europe, there are three noted Volcano's, *viz.* Mount Ætna in Sicily, Hecla in Iceland, and Veſuvius near Naples in Italy.

In Aſia, there are Mount Albours; one on the Iſland of Ternale, ſome among the Molucca Iſlands, one on one of the Mauritian Iſlands, one on the Iſland of Sorca, ſeveral in Japan, and a number more in the neighbouring Iſles;—there are alſo ſeveral in the Philippine Iſlands;—one in the Iſland of Juva, Mount Gounapi in the Iſland of Barida;—and there are others in the Indies, as in Sumatra, and the Northern parts of Aſia.

In Africa, there is Mount Beni-guazeval, near Fez;—Mount Fugo, on one of the Cape de Verd Iſlands;—and the Pike of Teneriffe, in the Canaries.

In America, there are a great number of burning mountains. In Peru, there is Mount Arequipa, Mount Carapa, Mount Malahallo, and many more.

In Mexico, Mount Popochampeche, and Mount Popocatepax. There are alſo ſome in the Weſt-India Iſlands. It is ſaid, that there are upwards of

of ſixty burning mountains in the world; but thoſe whoſe names I have mentioned, are the moſt remarkable; and their eruptions frequently cauſe earthquakes.

Burning Mountains are cauſed by beds of ſulphur, bitumen, minerals, pyrites, &c. depoſited in the bowels of the earth, which are capable of generating heat by fermentation. Theſe taking fire, produce exploſions in proportion to the quantity of inflammable ſubſtances. Sometimes they are more violent than thoſe of gunpowder or thunder; have aſtoniſhed, terrified, and deſtroyed mankind, and deſolated the earth around them. A Volcano may be called a terreſtrial cannon, whoſe mouth is often more than a mile and an half in circumference, out of which is vomited torrents of ſmoke and flames, rivers of ſulphur, bitumen, melted metal, clouds of aſhes and ſtones, enormous maſſes of rocks and calcined vitrified ſubſtances, which bury towns and foreſts, cover the country a hundred or two hundred feet deep, and form new hills and mountains. The action of the fire is ſo vehement, and the force of the exploſion ſo powerful, as to ſhake the earth, agitate the ſea, overthrow mountains, and deſtroy cities, at a very conſiderable diſtance.

Some have ſuppoſed, that theſe torrents of liquid fires proceed from the very centre of the globe, and that they come from Hell. The inhabitants of Iceland have believed, that the roaring of their Volcano was the cries of the damned in the infernal regions, and that its eruptions proceeded from the fury and deſpair of thoſe confined

in

in that horrible pit. Their aſtoniſhment begets fear, and their fear generates ſuperſtition. Some ſuppoſe that thoſe fires do not reach many miles below the ſurface of the globe: however, it is probable that ſome of them run very deep, or they could not vomit ſuch vaſt quantities of matter. Some mountains that have been on fire are gone out, according to the accounts given of them by hiſtorians: it is probable that all the fuel that was in them has been conſumed.

New Volcanos have burſt out; perhaps ſome have been ſet on fire by fermentation, and ſome by lightning from the clouds.

It is not known when Mount Ætna firſt took fire; but by digging 68 feet into the ground, marble pavements, and other ruins of an ancient city, have been found. The ſmoke and flames of this Volcano have been ſeen at the diſtance of 60 leagues. In 1650 and 1659, new fiery mouths did burſt out through this mountain, and they have alſo burſt out at other times. An eruption in 1537, cauſed an earthquake through all Sicily, that continued 12 days, and overthrew a great number of houſes and edifices. The earthquake ceaſed on the opening of a new mouth, which vomited a torrent of fire, that burnt up every thing within five leagues of the mountain. Great quantities of aſhes were thrown out, ſome of which were carried to Italy; and ſhips at a great diſtance from the Sicilian ſhore, were incommoded with them. Stones have been thrown out of this mountain, to the diſtance of 60,000 paces. One

of

of the eruptions, in 1693, deſtroyed upwards of 60,000 people, as we obſerved before.

Mount Hecla vomits its fires through ice, ſnow, and a frozen ſoil, with as great a violence as Mount Ætna. It throws out vaſt quantities of aſhes, pumice ſtones, and ſometimes boiling water. There is no living within ſix leagues of this Volcano.

Mount Veſuvius buried the city of Heraclea 60 feet deep under the matter thrown out in one of the eruptions. In 1737, there was ſuch a dreadful eruption, that a large torrent of red-hot melted metalline ſubſtance was vomited through ſeveral mouths, which overſpread the country, and ran to the ſea, which was ſix or ſeven miles from its ſource. The breadth of this torrent was about 50 or 60 paces, and its depth about 6 or 7 feet.

In 1693, a burning mountain on the iſland of Sorca in Aſia, vomited bitumen, and other inflammable ſubſtances, in ſo great a quantity as to form a burning lake, which extended till it covered the whole iſland. There have alſo been terrible eruptions in other parts of Aſia, where the burning mountains are ſituated.

The Volcano in the top of Teneriffe in Africa, frequently cauſes earthquakes. In 1704, an eruption of ſulphur and melted ore ran down like a river, deſtroyed ſeveral towns, and converted the richeſt land in the iſland into a barren deſert. Other burning mountains in Africa have their eruptions, and cauſe earthquakes, and ſo do thoſe in America.

I ſhall conclude this Chapter by juſt mentioning the cauſe of *Hot Springs*.

As

As there are ſubterraneous veins of liquid fires in the bowels of the earth, ſome of the waters in thoſe ſprings may be heated that way; and others may be heated by paſſing over beds of minerals, that generate heat by fermentation:—but more of this, when I come to treat of the virtues of the mineral waters.

CHAP.

CHAP. XIX.

How the AUTHOR *came to form a new Hypotheſis concerning the Cauſe of the* AURORA BOREALIS—*What his opinion is—Why thoſe Lights did not appear in former Ages—His Hypotheſis verſified.*

IN the evening of the 26th of January 1788, as I was ſitting in a large room in the State of Vermont, the weather being very ſevere, a cat jumped into my lap, whoſe hairs were ſtiffened with the cold; and, as I ſtroked them, I obſerved that they emitted coruſcations, and began to conclude that they were the electrical fluid. In a few minutes I turned my attention to the cauſe of the Northern Lights. Said I, why may not the atmoſphere emit coruſcations as well as the hairs of the cat, if it is properly ſtiffened with the cold, and agitated by the different currents of air? I therefore formed a new *hypotheſis* concerning the cauſe of the *Aurora Borealis;* and ſuppoſed, that thoſe phænomena are generated by aqueous, nitrous, ſulphureous, bitumenous, and other exhalations from the fumes of various kinds of waters, earths, minerals, vegetables, animals, fires, burning volcanos, &c.; which being charged with a ſufficient quantity of the electrical fluid, and rarefied by the heat of the ſun,

ſun, become lighter than the ſurrounding atmoſphere: that from hence they aſcend, until they are elevated to the upper regions of the air; and being driven by the wind from the equatorial and temperate to the polar regions, meet with the cold, combine and ſtiffen to a proper conſiſtence by reaſon of their humidity; and, being afterwards agitated by different currents of air, crackle and ſparkle, like the hairs of cats and other animals when ſtiffened with the cold; which coruſcation in the temperate and frigid zones, appears in the horizon, zenith, or elſewhere, according to the poſitions of the ſpectators, and the elevated exhalations: that the diverſities of the colours ariſe from the difference of the qualities of the combined particles, as thoſe which are of the moſt inflammable nature ſhine with the greateſt luſtre.

That the Northern Lights did not appear in ancient times, becauſe the air was not impregnated with proper materials to generate thoſe phænomena; that the conſuming of great quantities of fuel in America in theſe latter ages, the breaking out of burning mountains, and the viſitation of our ſyſtem by blazing ſtars, whoſe atmoſpheres have been ſo greatly expanded by the heat of the ſun; that a part of them have fell into the atmoſphere of our earth, and charged it with new matter; that from this, and the other fumigations, the air has undergone ſuch a change, that whenever it is brought into a proper conſiſtence, the *Aurora Borealis* makes its appearance, unleſs it becomes inviſible by the rays of the ſun or moon.

That

That the rays of the Northern Lights riſe much higher than the combined particles from whence the lights proceed; which is manifeſt by the rays of a candle being extended to the ſides of a room, the light of a fire to the clouds, and that of the ſun to this globe.

Sometimes I have heard the combined particles crackle, when they have been agitated by the wind: their noiſe reſembled, in ſome meaſure, that of a looſe ſail flapped in a gale of wind.

The hemiſphere is often illuminated till it is as light as bright moon-ſhine; the particles move in different directions, and appear in different forms: they frequently ſend forth ſtreamers, which dance like lucid pillars; and about two or three times I have ſeen them appear like armies fighting againſt each other.

The hemiſphere is ſometimes as red as a fiery oven; but in general theſe phænomena are more brilliant, and the lights are more bright and frequent, in the temperate and frigid zones, than they are in the torrid.

Theſe lights do not go out immediately, like a flaſh of lightning, but often continue ſome hours. This appears myſterious: but the humidity of the particles undoubtedly cauſes them to combine immediately after they are agitated by the wind; but when the humidity is deſtroyed, the combination ceaſes, and of courſe the phænomena.

Some have imputed the cauſe of the *Aurora Borealis* to the electrical fluid, and I am confident that it is that fluid that produces thoſe lights; but the queſtion is, What puts it in motion, and

makes it break through the bands of its confinement, if it is not the frictions produced by the wind?

Thus have I mentioned the hypothesis I formed:—It has been published through America; and since my arrival in England, it has been promulgated here. I have not heard that any person ever wrote against it: and if I am in the dark, I shall rejoice in being enlightened; as it is the truth I aim to find, and publish to the world for the benefit of mankind.

I shall conclude this chapter with the following lines, *viz.*

IN seventeen hundred eighty-eight, I sat
In a large room, with a good natur'd *Cat:*
She soon jump'd up, and stood upon my knees;
I strok'd her back, which did her not displease.
As she purr'd round, and grew exceeding bold,
I found her hairs were stiff'ned with the cold:
When I strok'd them—behold, the sparks did fly!
Like flaming lightning through the azure sky.
From what, said I, from what can this proceed?
Must not this be electric heat indeed?
Is it not strange, that it doth break its bands!
When the cat's hairs are stroked by my hands?
Whilst in my studies I did thus proceed,
I form'd a new *hypothesis* indeed!
I turn'd my thoughts upon that gloomy night,
Unto the cause of the great northern light:
May not, said I, the vapours here and there
Emit such coruscations in the air,
When they into a proper state are roll'd,
Condens'd and stiff'ned by the freezing cold,
And agitated by the lofty sails
Of breezy currents, or of gentle gales?

Sol's

Sol's heat, ſaid I, moſt rapidly exhales
Fumes from the mountains and the deepeſt vales;
From earths and waters, mines and ſulphurs all,
From plants and herbs, from trees both low and tall;
From creeping things of diff'rent kinds of names,
From burning hills, and all the fiery flames;
From nitrous ſalts, and other things that be
Found on the land and the great wat'ry ſea.
By the Sun's heat, theſe fumes are much enlarg'd;
And, being with electric matter charg'd,
Become more light, it cannot be deny'd,
Than the ſurrounding air on ev'ry ſide.
Hence they aſcend, and elevated are
Unto the regions of the upper air;
And being driven by the wind that rolls
From the equator onward to the polls,
Meet with the cold—their humid parts from thence
Combine with others, and become more denſe.
The compoſition, ſhaken by the means
Of windy currents called airy ſtreams,
Emit fine ſparks, as I've already told,
Like the cat's hairs, when ſtiff'ned by the cold;
Which coruſcations in the zones appear
Sometimes to draw towards us very near:
Sometimes they're high, and then again they're found
Deſcending gently to the ſolid ground;
Illuminating, in the ſilent night,
The hemiſphere with a refulgent light!
Theſe northern lights, as I have oft been told,
Were never known within the days of old;
But now, behold! they're often ſeen to dance
In Britain, Holland, Germany, and France!
Nay to and fro they by the winds are hurl'd,
'Till they appear in moſt parts of the world.
In divers forms within the changing year,
Thoſe floating exhalations oft appear:
Sometimes they do like lofty pillars riſe,
And ſhoot their ſtreams towards the higher ſkies;
Sometimes they dance about like fiery ſails,
Sometimes they look like clouds—like comets tails;

Sometimes like armies fighting in the air!
But this phænomenon is ſomething rare!
Sometimes they're red, and then again they're white;
Sometimes they ſhine with a refulgent light!
Sometimes they crack, and rapidly the ſound
Extends itſelf down to the ſolid ground:
Sometimes their motion, ev'ry one doth know,
Is very ſwift, and then again 'tis ſlow.
May we not now with reaſon here ſuppoſe,
That theſe diverſities of colours roſe
From particles which in the air exiſt,
And do of diff'rent qualities conſiſt?
That thoſe which were of the moſt flaming kind,
Have always with the greateſt luſtre ſhin'd?
In later times, a change without all doubt
Within the atmoſphere was brought about;
Which is the reaſon why the light appears
To us ſo frequent in theſe modern years,
And why it did not in the former age
Appear to thoſe that then were on the ſtage.
Perhaps the earth ſome time hath drawn a ſhare
Of rambling comets' atmoſpheric air:
For, as they paſs in their elliptic courſe
Through this great ſyſtem with a rapid force,
Sol's burning heat their atmoſpheres expand,
'Till part of them into the earth's do land;
Her great attraction cauſing them to fall,
And change the air that doth ſurround her ball.
Some burning mountains, too, without all doubt,
Have on this globe in modern times burſt out;
Whoſe fumes have charg'd the circumambient air
With new expanded matter every-where.
The air alſo might change in ſome degrees,
By the conſumption of the num'rous trees,
And other fuel, in theſe modern times,
Burnt by the people in the weſtern climes.
The air thus chang'd, its particles combine,
And wond'rous lights now frequently do ſhine;
Some red, ſome white, ſome crimſon, pale, and blue;
Some ſhining bright, ſome with a greyiſh hue:

But

But oft they're hid by Sol's refulgent light,
And the Moon's rays within the ſilent night.
The northern lights aſcend more high, indeed,
Than the great maſs from whence they do proceed;
Illuminating, as they do ariſe,
The hemiſphere, towards the upper ſkies.
To tell the truth, it is my candid mind,
That the electric matter lies confin'd
Within the vapours ſtiff'ned in the air,
Until an agitation makes them rare:
Then the electric fluid breaks its bands,
As from ſtiff hairs when ſtroked by our hands;
Through its confinement truly it doth burſt,
Something like lightning in a thunder guſt.
If you ſhou'd aſk, what makes this fiery train
In the wide hemiſphere ſo long remain?
Why in an inſtant it doth not go out,
Like flaming lightnings hurling round about?
I ſhou'd the myſtery thus to you unfold:
The particles keep ſtiff'ned with the cold;
Although expanded by a gentle breeze,
Yet in an inſtant they again do freeze.
Thus they go on from time to time to ſhine;
At laſt they're broke ſo that they can't combine;
Then in the air, behold, they take a flight!
And the phænomenon goes out of ſight.

Thus I've attempted to relate, indeed,
The cauſe from whence the northern lights proceed;
If I am wrong, with pleaſure and delight
I'll thank the perſon that may ſet me right;
As 'tis the truth—the truth I aim to trace,
And ſpread the fame amongſt the human race.

London, Jan. 27, 1791.

CHAP. XX.

Of the CAUSE *of the Rain-bow, Meteors, Sun-dogs, Jack-with-a-lanthorn, Hurricanes, Trade-winds, Monſoons, Whirlwinds, Water-ſpouts, Clouds, Rain, Hail, Snow, Froſt, Miſt, Fog, and Dew—The Riſing and Falling of the Tides, with an American Tide-Table.*

THE Rain-bow is a meteor of divers colours, occaſioned by the refraction and reflection of the light of the Sun falling on the ſurface of the drops of rain.

There are two Bows, the internal, and external. The former is produced by two refractions and one reflection. The firſt refraction is of incident rays proceeding to one common point, from which they are reflected to another, and from thence refracted a ſecond time to another, which produces the various colours of the bow; as, the red, orange, yellow, green, blue, indigo, and violet.

The external bow is produced by the reflection of the interior bow. The internal is the brighteſt, and the external the leſs brilliant.

The higher the ſun is above the horizon, the lower will the bow be; but the lower the ſun is, the

the more will the bow be elevated. Rain-bows often appear where great rivers fall down ſteep places with ſuch rapidity as to raiſe a miſt in the air.

A Meteor is an imperfect mixed body, conſiſting of vapours drawn up into the middle regions of the air: they appear in divers forms. Some meteors are very large, and make a tremendous noiſe like a clap of thunder, and even cauſe the earth to tremble. We have had ſeveral in America, ſince my remembrance, that have made dreadful exploſions: they were undoubtedly generated by ſuch combuſtibles as produce the thunder and lightning; but, in general, they fly through the hemiſphere without any remarkable report.

Sun-dogs, called Mock Suns, becauſe they reſemble the ſun, are two ſpots that frequently appear in a cloud when the ſun ſhines through it, and when he is about 15 or 20 degrees above the horizon. We often ſee them in America, and they commonly precede a ſtorm. Their colour is much like that of the rain-bow, and their magnitude equal to that of the apparent ſolar diſc. One is ſituated on the north, and the other on the ſouth ſide of the ſun. The refraction and reflection of the rays of light are the cauſe of theſe phænomena.

We have alſo circles round the ſun and moon frequently in America, which appear ſomething like the rain-bow, but of a paler colour. Theſe are occaſioned by the refraction and reflection of the ſolar and lunar rays, and are ſigns of rain or ſnow.

A Jack with a Lanthorn, called *Ignis Fatuus*, or Will with a Wiſp, is a fiery meteor, conſiſting of a viſcous ſubſtance, or fat exhalation; which being kindled in the air, reflects a kind of thin flame, without any ſenſible heat. They commonly appear in low lands, in foggy nights; and dance up and down according to the motion of the air. People that attempt to follow them, often wander out of their way, and ſometimes run into hedges and ditches. I have ſeen three of theſe meteors in my travels.

A Hurricane is a violent ſtorm of wind; and a wind is a current or ſtream of air, as a river is a current or ſtream of water. The blowing of the Wind ariſes principally from two cauſes, *viz.* from the rarefaction and elevation of the atmoſphere by the heat of the ſun, and the condenſation and depreſſion of the ſame by the cold. Hence the air, where the ſun is verticle, becomes the moſt heated and rarefied; and being thereby made lighter, riſes upwards, and the cold air on either ſide ruſhes in to reſtore an equilibrium. Some ſuppoſe that the diurnal motion of the earth is the cauſe of the blowing of ſome eaſterly winds; but when particles are exhaled by the heat of the ſun, they muſt neceſſarily ſubſide as they become condenſed with the cold, and are thereby made heavier than the particles that are underneath: hence they fall, and cauſe the air which is under them to be driven away; but when they are all ſubſided, an equilibrium is reſtored, and the atmoſphere is at reſt.

Hurricanes

Hurricanes are ſometimes ſo violent, that they tear trees up by the roots; overthrow houſes, churches, and ſteeples; ſweep off vegetables and animals, and deſolate countries. They deſtroy veſſels on the ſea, and throw the watery element into ſuch raging waves and billows that they produce inundations.

The Trade-winds blow from north-eaſt on the north ſide of the equinoctial, and from the ſouth-eaſt on the ſouth ſide, and almoſt due eaſt at and near the equator; but at two or three degrees on each ſide the winds vary, and it is ſometimes calm weather for a month together.

The Monſoons are periodical winds, which blow about ſix months in one direction, and the other ſix months directly oppoſite. Theſe winds ſhift at the times of the equinoxes, and produce terrible ſtorms of wind, thunder, lightning, and rain. The monſoons are chiefly in the Indian ſeas, and do not extend above two hundred leagues from the land.

Sea and Land-breezes are alſo periodical winds, which blow from the land from midnight till about noon; and from the ſea, from about noon till midnight. They do not extend more than three leagues from ſhore.

Beyond the latitude of 30 deg. north and ſouth, the winds blow from all the different points of the compaſs.

A Whirlwind is cauſed by three or more winds meeting in one point, which makes them fly upwards; and that which is the ſtrongeſt, drives the other before it.

A Water-

A Water-ſpout is a maſs of water collected between a cloud and the ſurface of the ſea, in ſhape of a pillar of water. Theſe ſpouts are frequent in the Weſt-Indies; and ſhips that are near them are in great danger, unleſs the ſpouts are broken and diſperſed by a ſhot from the cannon. Some have ſuppoſed that water-ſpouts are cauſed by ſulphureous exploſions burſting out under the ſea; and perhaps that may be the cauſe ſometimes. I do not remember that I ever ſaw above one water-ſpout, and that was extended to the clouds: I ſuppoſed it was occaſioned by a whirlwind. It doth not appear to me, that ſuch exploſions are the cauſe of water-ſpouts in general; becauſe they would ſend the water up in an inſtant, and then it would immediately ſubſide, unleſs a ſtream of fiery matter ſhould continue to iſſue from under the ſea. Again, if a fiery exploſion was the cauſe, I ſhould think they would not travel from place to place, as the one did which I ſaw.

Clouds are a collection of vapours exhaled from the earth and waters into the middle regions of the air; but the more they are rarefied, the higher they riſe, and, being lighter than the air that buoys them up, float in the atmoſphere until they are condenſed by the cold:—hence the upper parts fall on the lower, till a thick maſs is formed.

The Rain is cauſed by the aqueous particles condenſing till they become heavier than the air which is under them:—hence they fall in drops called *rain*.

Hail is occaſioned by the watery particles meeting with ſuch degrees of cold as to make them freeze after they have been formed into drops.

The

The Snow is produced by the vapours freezing before they get formed into drops.

Froſt is cauſed by the freezing of thoſe moiſt particles which we call dew.

The Miſt is occaſioned by the vapours being ſo condenſed with the cold, that they cannot riſe high above the earth;—hence they hover about upon and near its ſurface.

A Fog is cauſed juſt like a miſt; only the particles are not quite ſo much condenſed with the cold.

A Dew is produced by the condenſation and ſubſiding of the inviſible vapours which have been exhaled in the day-time by the coolneſs of the evening, when the weather is not cold enough to make them freeze.

The Riſing and Falling of the Tides are occaſioned by the attraction of the ſun and moon upon the waters; and the nearer thoſe luminaries are, the higher will the tides be. When the moon is at her perigeon, or in that part of her orbit that is the neareſt to the earth, and there happens to be a conjunction or an oppoſition, the tides will aſcend very high: But tides are not only raiſed every day upon the waters, but upon the land; for the atmoſphere riſes and falls like the ſea, and the higher the one riſes, the more will the other be elevated.

There are two kinds of tides, *viz.* the ſpring, and the neap. The former begins three days before, and continues three days after the full and change of the moon; and the latter happens about the times of her firſt and laſt quarters. The

ſpring

ſpring tides are the higheſt, and the neap the loweſt.

As the tides follow the courſe of the moon, it is not high water twice in twenty-four hours, but twice in twenty-five nearly, which is called a lunar day; for, as ſhe moves every day in her menſtrual courſe to the eaſtward, and as her motion is very unſteady, it is ſometimes a little more, and ſometimes a little leſs than twenty-five hours from the time of her leaving the meridian till ſhe returns there again.

At the time of the new and full moon, the ſun and moon attract together, which makes the tides riſe higher than at other times; but when ſhe is in her quadratures, thoſe attractions are in oppoſition to each other:—hence, when the ſun raiſes the water, the moon depreſſes it.

The tides do not riſe ſo high in the torrid zone, as they do in the temperate and frigid: hence they are not ſo high in the Weſt-Indies, as they are at New-York, Boſton, Halifax, &c.

In the Bay of Funday, it is ſaid, they frequently riſe ſeventy feet, owing to the rapidity of the Gulf-ſtream, which meets the waters that come from the rivers in that part of the world, and throws them up in billows. The tides often riſe twenty-five feet at Quebec, although it is ſituated about three hundred and twenty miles up the river St. Lawrence.

At ſome places, it is high-water when the moon is on the meridian; at others, ſome hours before that time; and at others again, ſome hours after ſhe has paſſed it. Theſe inequalities ariſe from the waters

waters being obſtructed by lands, gulphs, and other ſtreams. The general motion of the tides in the great oceans, are from eaſt to weſt, according to the apparent courſe of the moon.

When the wind blows the ſame way with the coming in of the tide at any place, it will be high water ſooner than the time mentioned in a tide-table; and when it blows againſt the tide, it will be full ſea later. The higher the tides riſe, the lower they fall, as one extreme follows another.

Some have ſuppoſed that our terraqueous globe is a living animal, and that it has not only life, but breath, as well as motion; and that its inſpiration and reſpiration is the cauſe of the riſing and falling of the tides:—but this is a matter I ſhall not undertake to determine at preſent.

Beſides the earth, air and water, the moon hath an effect upon the vegetable and animal creation, and attracts their fluids in proportion to her various ſituations from the ſun, and her different diſtances from our globe.

I ſhall conclude this chapter by adding the following Tide-table, which I have taken much pains to conſtruct from the beſt authorities I have been able to collect. It may be of great ſervice to mariners ſailing on the North-American coaſt, if they ſhall be pleaſed to buy, and keep by them, the AMERICAN ORACLE.

A TIDE-

A TIDE-TABLE, exhibiting the Time of HIGH WATER at a great Number of Places in NORTH AMERICA.

Conſtructed and Publiſhed at New-York, in 1783.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
0 15	9 0	2 3	3 15	5 54	6 40	7 35	7 48	8 0	8 17	8 30	9 15	9 30	10 0	11 15	11 45	12 0	12 30
1 16	9 49	2 51	4 3	6 42	7 28	8 23	8 36	8 48	9 35	9 18	10 3	10 18	10 48	12 3	12 33	12 48	1 18
2 17	10 37	3 39	4 51	7 30	8 16	9 11	9 24	9 36	10 23	10 6	10 51	11 6	11 36	12 51	1 21	1 36	2 6
3 18	11 25	4 27	5 39	8 18	9 4	9 59	10 12	10 24	11 11	10 54	11 39	11 54	12 24	1 39	2 9	2 24	2 54
4 19	12 13	5 15	6 27	9 6	9 52	10 47	11 0	11 12	11 59	11 42	12 27	12 42	1 12	2 27	2 57	3 12	3 42
5 20	1 1	6 3	7 15	9 54	10 40	11 35	11 48	12 0	12 47	12 30	1 15	1 30	2 0	3 15	3 45	4 0	4 30
6 21	1 48	6 51	8 3	10 42	11 28	12 23	12 36	12 48	1 35	1 18	2 3	2 18	2 48	4 3	4 33	4 48	5 18
7 22	2 36	7 39	8 51	11 30	12 16	1 11	1 24	1 36	2 23	2 6	2 51	3 6	3 36	4 51	5 21	5 36	6 6
8 23	3 24	8 27	9 39	12 18	1 4	1 59	2 12	2 24	3 11	2 54	3 39	3 54	4 24	5 39	6 9	6 24	6 54
9 24	4 13	9 15	10 27	1 6	1 52	2 47	3 0	3 12	3 59	3 42	4 27	4 42	5 12	6 27	6 57	7 12	7 42
10 25	5 1	10 3	11 15	1 54	2 40	3 35	3 48	4 0	4 47	4 30	5 15	5 30	6 0	7 15	7 45	8 0	8 30
11 26	5 49	10 51	12 3	2 42	3 28	4 23	4 36	4 48	5 35	5 18	6 3	6 18	6 48	8 3	8 33	8 48	9 18
12 27	6 37	11 39	12 51	3 30	4 16	5 11	5 24	5 36	6 23	6 6	6 51	7 6	7 36	8 51	9 21	9 36	10 6
13 28	7 25	12 27	1 39	4 18	5 4	5 59	6 12	6 24	7 11	6 54	7 39	7 54	8 24	9 39	10 9	10 24	10 54
14 29	8 13	1 15	2 27	5 6	5 52	6 47	7 0	7 12	7 59	7 42	8 27	8 42	9 12	10 27	10 57	11 12	11 42

An EXPLANATION of the above TABLE.

A In the firſt column denotes the Moon's Age, in Days.
B the time of H. W. at N. York, N. London, Eliza, Town Point, C. Henlop, Cockſpur in Georgia, Brunſwick, North-Carolina.
C Philadelphia.
D Mobile Po. Kingſton, Eſopus.
E Albany.
F San. H. Geo. T. Bar, Charl. Bar.
G Newp. St. Aug. Bar, N. Prov.
H Savannah, Bedford in Dartm.
I Cape Fear.
J Amboy, Providence.
K Port-Royal Bar.
L Tybee Bar.
M Sunbury in Georgia, Hell Gate.
N Tarpaulin Cove, Newtown La.
O Boſton, Reedy Iſ. Falm. Caſco-Bay, Say Brook B. Wilm. N. C.
P White Stone.
Q N. Hav. Hack. and Pollepel's Iſ.
R Guildford and Nantucket.

N. B. If you deduct 7 hours and 57 minutes from the time of high water at New-York, it will give the time of high water at Philadelphia.

Deduct 5h. 45m. and it gives high water at Mobile Point, Kingſton, and Eſopus.

Deduct 3h. 6m.	Albany.
Deduct 2h. 20m.	Sandy-Hook, George-town Bar, and Charleſtown-Bar.
Deduct 1h. 25m.	Newport, Saint Auguſtine Bar, and New-Providence.
Deduct 1h. 12m.	Savannah and Bedford in Dartmouth.
Deduct 1h. 0m.	Cape Fear.
Deduct 0h. 43m.	Amboy and Providence.
Deduct 0h. 30m.	Port-Royal Bar.
Add 0h. 15m.	Tybee Bar.
Add 0h. 30m.	Sunbury in Georgia, and Hell-Gate.
Add 1h. 0m.	Tarpaulin Cove, and Newtown Landing.
Add 2h. 15m.	Boſton, Reedy-Iſland, Falmouth, Caſco Bay, Saybrook Bar, Wilmington, North-Carolina.
Add 2h. 45m.	White-Stone.
Add 3h. 0m.	New-Haven, Hackinſack, Pollepel's Iſland.
Add 3h. 30m.	Guildford and Nantucket.

If you would find the time of high water at any place mentioned in the above Table, proceed thus, *viz.*

1. Find how many days old the moon is, and apply it to this Table.

2. Take

2. Take out the hours and minutes which ſtand in the column for the place you mean to find the time of high water for, which ſtands againſt the day of the moon's age.

EXAMPLE.

Suppoſe you would find the time of high water at New-York, the moon being eight days old:

With the number Eight enter the Table, and againſt Eight under A, you will find in the ſecond colume, under B, 3h. 24m. the time required, &c.

CHAP.

CHAP. XXI.

What may properly be called MONEY—*Silver a Circulating Medium in Abraham's time—When Metals were firſt coined according to Chronology—Of Bills of Exchange and Public Banks—Of the good and bad Effects of Paper Money in America—The New Currency ordered to be coined by Congreſs—The Diſadvantages of Bills upon Intereſt, and of a Sinking Fund—What Currency might be moſt beneficial to the Nations—Weights and Meaſures ought to be alike through the World—The Credit of Money riſes and falls in proportion to the Demand there is for it—The great Advantages of a Circulating Medium, and the Calamities that follow where People are deſtitute of one—Why ſome Countries are drained of Caſh—How to get Money, and grow rich.*

MONEY is a piece of metal ſtamped with the effigies of a Prince, or arms of a State, which makes it current and authentic to paſs at a common rate for a medium of trade.

Gold, ſilver, and copper, are the principal metals uſed in the coining of money; and nothing but metals coined can properly be called money, although paper, parchment, leather, &c. have been

made uſe of for a circulating medium, and called money in divers countries.

It appears by Sacred Writ, that ſilver was in circulation in Abraham's time; for he bought a piece of ground for a burying-place, for which he gave four hundred ſhekels of ſilver, which was about fifty pounds ſterling, or but half that ſum if the ſhekels were of the ſmalleſt kind: for the Jews had two kinds of ſhekels; one was equal to two ſhillings and ſixpence, and the other to one and threepence. How long money was in uſe before Abraham's days, we have no account: but, according to chronology, it was firſt coined by Phydon, a tyrant of Argos, 894 years before Chriſt; and firſt uſed in England 25 years before the Chriſtian æra, but coined at Rome 269 years before the ſaid æra commenced.

	A. D.
Sterling money firſt coined in England -	1216
Gold in ditto - - - - - - - - - - -	1257
Shillings in ditto - - - - - - - - - -	1505
Copper in ditto - - - - - - - - - -	1672
Sovereign coin was valued at 20 ſhillings in	1532
at 24 ditto in -	1550
at 30 ditto in -	1552
Guineas went for - - 30 ditto in -	1688
But were reduced to - 21 ditto in -	1717
It was ordered that gold ſhould paſs by weight, and that which was too light ſhould be recoined - - - - - - - - June 4,	1774

Hence it appears, that the ſacred and profane hiſtories do not agree concerning the firſt coining

of money, for Abraham lived a long time before Phydon.

	A. D.
Bills of exchange were invented in England	1160
And an act was paſſed to prevent the ſending of any other money out of the kingdom, in	1381
And alſo another for regulating their payment, in	1698
The firſt public bank was eſtabliſhed at Venice, in	1550
And that of England, in	1693

Bills of exchange, bank-notes, and emiſſions of paper-money, have been of very great utility in the carrying on of trade and commerce, wherever their credit has been kept up: but where they have loſt their credit, they have been very injurious to individuals, and the community at large.

The circulating medium in North America, has conſiſted of gold, ſilver, copper, and paper.

There has been a number of emiſſions of paper-money in that quarter, ſome of which have been very advantageous in the payment of public taxes and other debts, and in the carrying on of trade and commerce: but others, by loſing their credit, have done much damage, not only to the people of that country, but to foreigners.

About the year 1745, paper-money was emitted in New England, for the purpoſe of carrying on a war againſt the French, when Cape Breton was taken. This currency depreciated in the Maſſachuſetts, till forty-five ſhillings were not worth more than a dollar, or four ſhillings and ſixpence

ſterling; and their paper-money in Rhode-Iſland, till eight pounds were equal to a dollar only.

In 1750, Great-Britain ſent one hundred and eighty-three thouſand pounds ſterling to the Maſſachuſetts, as a remittance to reimburſe the expence that province had been at in taking Cape Breton; and their depreciated paper-money was called in, and paid off at the rate of one dollar for forty-five ſhillings, and the bills were burnt. Hence, the uſe of paper-money was totally prohibited in the Maſſachuſetts, till the war commenced between Great-Britain and her Colonies; and as their imports overbalanced their exports, the province was drained of its money, till it became very ſcarce: hence they were obliged to carry on much of their trade and commerce by barter.

I am ſorry I am not able to tell how their paper-money in Rhode-Iſland was redeemed, or what became of it; but the depreciation continued till 1759. They had paper-money in circulation in Connecticut juſt before the commencement of hoſtilities between the mother-country and her colonies, and its credit was nearly equal to that of gold and ſilver.

In New-York, the Jerſies, and Pennſylvania, they were deſtitute of a paper-currency for a long time; and as thoſe provinces were drained of their hard money, by reaſon of their imports overbalancing their exports, the inhabitants, to bring hard money from foreign countries, offered to give more for guineas, crowns, dollars, &c. than their nominal value: hence, eight ſhillings at New-York,

the

the north part of the Jerſies, and ſeven ſhillings and ſixpence in the ſouth part, and in Pennſylvania, was given for a dollar. But this ſcheme had not the deſired effect; for, although it brought a little money into thoſe Governments at firſt, yet the merchants ſtopped its progreſs, by raiſing the price of their commodities in proportion to the elevated price of the coin: the people were therefore obliged to carry on their trade chiefly by barter; a very dull way of doing buſineſs:—their trade became ſo ſtagnated, and their commerce was brought to ſuch a ſtand, that they were obliged at laſt to emit paper-money for a circulating medium. This gave new life and vigour to navigation, trade, commerce, architecture, agriculture, and the ſettlement of new lands. The inhabitants were greatly benefited by their various emiſſions, and, to the honour of thoſe provinces, they kept up the credit of their bills equal to that of gold and ſilver; and they anſwered for a medium of trade, and the payment of debts both at home and abroad.

The people at Delaware and Maryland had paper-money, which preſerved its value equal to gold and ſilver. In Virginia and the Carolinas they alſo had paper-money; but I have not learnt that they ever emitted any in Georgia, before the commencement of the hoſtilities between Great-Britain and her Colonies.

The paper-money depreciated in South Carolina, till thirty-two ſhillings and ſixpence was eſteemed to be equal to no more than a Spaniſh milled dollar; but its credit was raiſed by taxa-

tion, and remained equal to hard money, till the Province revolted from the Britiſh Government.

I have been informed, that the firſt emiſſion of paper-money in this province, was at the rate of four ſhillings and ſixpence for a dollar; but how their emiſſions were iſſued afterwards, I know not; nor how much their paper-currency depreciated in Virginia and North-Carolina, I have not learnt.

It has been ſaid, that the French in Canada and Nova-Scotia had paper-money in circulation when thoſe provinces were taken by the Engliſh, and that they loſt their bills in conſequence of their coming under the Britiſh Government. The circulating medium of thoſe Governments at preſent, is gold, ſilver, and copper; and their currency is different from that of Great-Britain.

The ſubſequent Table exhibits the different currencies that have been eſtabliſhed in the North American Governments:

	Value of a Guinea.			Value of a Dollar.		
	£.	s.	d.	£.	s.	d.
Canada and Nova-Scotia	1	2	6	0	5	0
New-England - -	1	8	0	0	6	0
New-York, and North Jerſey	1	17	4	0	8	0
South Jerſey - -	1	15	0	0	7	6
Pennſylvania - -	1	15	0	0	7	6
Delaware - - -	1	15	0	0	7	6
Maryland - - -	1	15	0	0	7	6
Virginia - - -	1	8	0	0	6	0
North-Carolina - -	1	17	4	0	8	0
South-Carolina - -	1	1	0	0	4	8
Georgia - - -	1	1	0	0	4	8

In South Carolina and Georgia, the guinea ought to be 21s. 9$\frac{3}{4}$d. according to the elevated price of the dollar above 4s. 6d.

Theſe

Theſe have been the eſtabliſhed currencies; but in ſome of the Governments ſouth of Canada, their currencies have gone backwards and forwards, and eſpecially in the Maſſachuſetts, Rhode-Iſland, and South Carolina.

The currencies of the Weſt-India Iſlands have alſo varied from that of Great Britain, as follows:

	£.	£.
At Jamaica -	140	equal to 100 Sterl.
Barbadoes -	135	
Nevis and Montſerrat	175	
Antigua and Saint Chriſtophers	165	

The reaſons why the currencies were ſo changeable and different from one another in the colonies, are as follow:

1. Thoſe Governments, in their infant ſtate, had but little trade, and of courſe but little money.

2. They were involved in debt for goods imported from Great Britain.

3. They had not many commodities for exportation, and were therefore obliged to export their gold and ſilver, which was as much a merchandize as any thing they dealt in.

4. The want of a circulating medium obliged them to emit bills of credit.

5. Their bills falling into diſcredit, by merchants giving more for gold and ſilver than the nominal value of the paper-currency; as that of giving forty-five ſhillings for a dollar in the Maſſachuſetts; eight pounds, in Rhode Iſland; eight ſhil-

lings, at New-York, &c. Hence the credit of the paper-money always depreciated in proportion to the elevated price of the ſolid coin.

Let us, in the next place, ſay ſomething concerning the depreciation of the paper-money emitted in America after the commencement of hoſtilities between Great Britain and her colonies.

The Legiſlative Aſſemblies in various Governments emitted paper-money for the purpoſe of carrying on the war; and afterwards the Continental Congreſs followed the ſame example *. The credit of thoſe emiſſions were equal to that of gold and ſilver for ſome time; and many who had hard money, exchanged it for thoſe bills at an equal par: but injured themſelves greatly thereby; for, in proceſs of time, the credit of the bills depreciated to that degree, that a hundred paper dollars were ſcarcely worth one of ſilver.

Various methods were taken to keep up the credit of the paper-currency: in ſome places, the prices of the neceſſaries of life were ſtated; but all proved abortive, for the credit fell till Congreſs reſolved that the paper-money ſhould be called in by a tax, which was accordingly done; and the paper-currency being loſt, the people were greatly diſtreſſed for a circulating medium, as law-ſuits were multiplied, and many impriſoned for taxes and other debts.

It has been ſaid, that the great ſcarcity of money was the cauſe of thoſe emiſſions paſſing equal to

* Two hundred millions of paper dollars were in circulation about the year 1781.

ſilver

ſilver and gold at firſt, and that they depreciated in conſequence of the following occurrences, *viz.*

1. From the riſe of the neceſſaries of life, by reaſon of the war.

2. By the Loyaliſts refuſing to take the money emitted by the revolted colonies, as they ſuppoſed the provinces would be conquered, and that the credit of the paper-money would fall to the ground.

3. From the Quakers refuſing to take the money, becauſe they ſuppoſed it was emitted for the purpoſe of promoting the effuſion of blood.

4. From counterfeit emiſſions being put into circulation.

5. From the conduct of ſharpers, who monopolized both the foreign and domeſtic productions, and ſold them for extravagant prices.

6. From their having no public funds to redeem thoſe emiſſions, by exchanging them for gold and ſilver.

After the commencement of the peace between Great Britain and America, the Legiſlative Aſſemblies of Rhode-Iſland, Vermont, New-York, the Jerſies, Pennſylvania, North Carolina, South Carolina, and Georgia, emitted paper-money, which was a great relief to the inhabitants of thoſe Governments: but their bills depreciated very much in Rhode-Iſland, and ſome in Vermont; but not a great deal in the middle Governments, tho' conſiderably in the Southern. The inhabitants of thoſe States where paper-money has not been emitted ſince the peace, have been greatly harraſſed with law-ſuits, impriſonments, &c. for the want of a circulating medium.

But,

But, according to the preſent conſtitution of the American States, no money but gold and ſilver is to be made a legal tender in the payment of debts: hence paper will not be made a legal tender, as it was formerly. The Britiſh merchants have ſuffered greatly in times paſt, by being obliged to take the paper-money when it was depreciated; but now that inconveniency will be removed, for the Congreſs have paſſed an Act for the coining of certain pieces of money, under the following names, *viz.*

An Eagle	equal to	10 dollars
Half Eagle		5 ditto
A Dime		$\frac{1}{10}$th ditto
A Cent		$\frac{1}{100}$th ditto
A Mille		$\frac{1}{1000}$th ditto.

This is to be the currency of the United States, and I underſtand that all the other currencies are to be aboliſhed: which is a very laudable act of the Congreſs; for, whilſt ſo many different currencies were ſuffered to paſs through the States, they were productive of many injuries to navigators, traders and travellers, becauſe the bills emitted in one State would not paſs in another, which was very detrimental to the tranſaction of buſineſs.

How much money would be ſufficient for a circulating medium in the United States, is uncertain: But I ſhould think, that ten millions of pounds ſterling would not be too much, according to the number of people; for it is ſaid, that their inhabitants

inhabitants conſiſt of about two millions and upwards of ſeven hundred thouſand ſouls; and according to a late publication, their national debt amounts to about ſixty-five millions of dollars.

How large the circulating medium of Great Britain is, is unknown to me; but ſome have ſuppoſed it is near twenty millions, beſides bank-notes and bills of exchange. According to the news-papers, the national debt is two hundred and ſixty-three millions; but ſome ſuppoſe it is but about two hundred and forty millions.

The number of the inhabitants of France are computed at about twenty-five millions; their circulating medium at 91,666,666l. 13s. 4d. and their national debt at 141,666,666l. 13s. 4d. ſterling. Therefore, I cannot ſuppoſe that ten millions would be too large a circulating medium for the United States of America.

Bills have ſometimes been emitted upon intereſt in the American States, and have paſſed as a medium of trade. But this kind of currency has been injurious to the people: For,

1. They were a great hindrance to the tranſacting of buſineſs with expedition, at fairs, markets, ſhops, &c.; for, whilſt the people were counting their money, they had to caſt up the intereſt of their bills before they could tell what they were worth; and thus, much time has been waſted through the inconveniency of ſuch a medium.

2. They were a great damage to people in diſtreſs, who wanted to borrow money; for, if the owners of the bills were able to keep them, they would hoard them up in their cheſts, inſtead of lending

ing them, becauſe they were ſure of their intereſt whilſt they had the principal in their own hands.

3. They diminiſhed the circulating medium greatly, by being hoarded up.—Therefore I cannot recommend bills upon intereſt for a medium of trade.

Some have ſuppoſed, that a ſinking fund is the beſt for a circulating medium, where people are obliged to have a paper-currency in circulation: But of this I diſapprove, though it would tend to make the money circulate briſkly; for people would be very careful how they kept ſuch money hoarded up in their cheſts, becauſe its nominal value would be continually ſinking; but when they attempt to pay a debt, they muſt be put to the trouble of computing, before they can know what their money is worth. Hence, if a twenty-ſhilling bill was to run down in as many years, and the poſſeſſor was to put it off after it had been emitted eleven years and two months, he muſt ſtand to compute before he could know what it was worth, which, at that inſtant, would be but eight ſhillings and ten-pence; and if he had owned the bill but ſix months, he muſt loſe ſixpence of its nominal value: and beſides all this, when the credit of ſuch bills are wholly run down, the circulating medium is totally deſtroyed. Therefore, the people would be obliged to emit new bills, or live without money, if no other currency could be obtained.

This erroneous opinion concerning a ſinking fund, hath ariſen from ſome who have ſuppoſed that

that a nation is in debt for the money the people emit themſelves; but they will be convinced of their error, when they conſider that the nation did not borrow it, that it is their own manufactory, and that they owe nobody for it.

Different nations have different currencies; but, in my opinion, that of pounds, ſhillings, pence, and farthings, is the moſt convenient: and if ſuch a currency was to be eſtabliſhed through the world, it might be very beneficial to the nations. It might alſo be very beneficial to have all the different pieces of coin correſpond with the pounds, ſhillings, pence, and farthings, agreeable to the following Table, *viz.*

		£.	s.	d.	q.
A Guinea	equal to	1	0	0	0
Half Guinea		0	10	0	0
Crown		0	5	0	0
Half Crown		0	2	6	0
Shilling		0	1	0	0
Sixpence		0	0	6	0
Penny		0	0	1	0
Halfpenny		0	0	0	2
Farthing		0	0	0	1

Likewiſe Bills of Exchange

Of - - -	2	0	0	0	
	5	0	0	0	
	10	0	0	0	
	20	0	0	0	
	30	0	0	0,	&c.

Hence the currencies might be alike through all the parts of the known world, if the nations would

would agree to it; and a guinea made in Great Britain, might be equal in weight and value to one made in France; and one coined in France, might be equal to one coined in America, &c. This would be a great advantage in the carrying on of trade and commerce both at home and abroad, as it would ſave the trouble and expence of reducing the value of one currency to that of another.

This currency would be much eaſier reckoned than that of dollars and other ſorts of coin, for once reckoning might anſwer: but we have to reckon or count our money twice when we take or put off dollars, &c. for we are obliged to count our dollars firſt, and afterwards reduce them into pounds, and juſt ſo it is with guineas; whereas if they were equal to twenty ſhillings each, once counting would be ſufficient.

And although the guineas and other pieces of money might be made of equal weight and value through the world; yet, the money coined in each kingdom might be diſtinguiſhed by having the effigies of each King, and the arms of each State, enſtamped on it. It is my opinion, that if all the different currencies, with weights and meaſures, were reduced to one ſtandard through the world, it would be a great benefit to mankind.

A paper-currency is the beſt, if the credit of it is kept up; for it is lighter to carry from place to place, and may be more eaſily ſecreted from thieves and robbers, than gold and ſilver: but if the credit of paper-money is ſuffered to depreciate,

it

it proves an engine of fraud and oppreſſion, becauſe it reduces people to beggary and want.

The credit of a currency will fall in time of war, in proportion to the advanced price of the neceſſaries of life. Hence, when Samaria was beſieged by Benhadad the king of Syria, the people in that city were ſo greatly diſtreſſed for the want of proviſions, that an aſs's head was ſold for fourſcore pieces of ſilver, which was equal to eighty pounds ſterling, and the fourth part of a cab of doves dung for five pieces. *Vid.* 2 Kings, vi. 25.

When people are pinched and ſtraitened, they will ſometimes give all their ſubſtance for relief. Hence, Satan ſpake the truth, though he is a liar, when he ſaid, Skin for ſkin, yea, all that a man hath will he give for his life. *Vid.* Job, ii. 4.

It has been ſaid, that the people of Montreal in Canada were ſo greatly pinched for ſalt, juſt before that place was taken by the Engliſh troops, that they gave fifty dollars a buſhel for that commodity.

I have already mentioned, that the bills emitted by the Continental Congreſs, depreciated, in the time of the war, at the rate of a hundred for one. At New-York, the credit of the gold and ſilver was judged to be depreciated as much as ten for one, whilſt that place was in the poſſeſſion of the Britiſh troops, as proviſions were ten times as dear as they were before the war commenced; but ſince the war is over, it is ſaid that the credit of the money is as high as ever it was before the troubles began.

From

From hence we may infer, that the credit of a circulating medium rifes and falls in proportion to the demand there is for it, and the elevated price of the neceſſaries of life: But money ought by no means to be undervalued, becauſe its credit riſes and falls; neither ought the people to be deprived of a circulating medium, becauſe its credit has been reduced in a time of public calamity.

There is no intrinſic value in bills of credit or paper-money, as there is in gold and ſilver; although in reality it is of very great utility in the tranſaction of buſineſs, wherever its credit is kept up, as was before obſerved. Hence it is neceſſary to have public funds of hard money, to exchange for that of paper.

A Kingdom or State may have too much, juſt enough, and not enough money for a circulating medium; for if the Almighty ſhould rain down a ſhower of guineas upon a kingdom or country, and make money as plenty as the ſands upon the ſea-ſhore, it would ſoon be of little value amongſt the people; and its credit would fall, till a ton of gold would not fetch more, if ſo much, as an ounce will now. It is therefore requiſite that every nation ſhould not be overſtocked with money, but only have juſt enough for a medium of trade, and to defray foreign and domeſtic debts: And it is alſo requiſite, that the people ſhould have a ſufficient quantity of ſpecie for theſe purpoſes: for, wherever they are deſtitute, the wheels run heavy; the progreſs of navigation, trade, and commerce, is impeded; agriculture, architecture,

ture, and the manufactures, do not thrive and flouriſh: the people are oppreſſed with heavy taxes, hampered and harraſſed with law-ſuits, and frequently impriſoned for debt. Hence, that people that is deſtitute of a circulation medium, muſt be in a deplorable condition.

Surely oppreſſion will make a wiſe man mad; and where people have heavy burthens laid upon them, which they are unable to bear. When they are in debt, ſtraitened and pinched for money, they run mad; quarrel and contend with one another; commence needleſs law-ſuits; take away goods, lands, proviſions, and other property; ſtrip poor women and children almoſt naked, and reduce them to poverty and diſtreſs: The honeſt and induſtrious huſband muſt go to priſon, have his conſtitution injured by confinement, muſt be kept from following his lawful occupation; whilſt his wife and children are languiſhing for the neceſſaries of life. Theſe things are not only hurtful to individuals, but to the community at large:

Vanitas vaniſſima! iſta omnia ſunt vanitas!

The want of money alſo hinders people from travelling abroad, to do buſineſs of importance; for if a man is obliged to take a long journey, and is deſtitute of caſh, unleſs he can carry proviſions enough upon his back, or on his horſe, to ſupport himſelf, he muſt periſh on the road, without he turns beggar, which would expoſe him to the mock and ridicule of the populace; and let him be at home or abroad, he will be teaſed in his mind, diſturbed of his reſt, and hindered from

performing his duty in ſome lawful employment. If he has money due to him, he will be obliged to ſpend much time in running after it;—and all to no purpoſe: his debtors cannot pay him; neither can he ſatisfy the lawful demands of his creditors. All theſe, and many more calamities, naturally reſult from the want of a circulating medium.

The Wiſe Man ſaid, that *money is a defence*, as well as wiſdom. This was a very good obſervation; for, it defends us againſt hunger and nakedneſs, relieves us in ſickneſs and health, prevents our being impriſoned, and having our families ruined by poverty and diſtreſs. It gives life and vigour to the cultivation and improvement of the liberal and mechanical arts and ſciences, and no nation can be happy without it. *Pecunia obediunt omnia.*

The advantages of a circulating medium are ſo great, that no nation can be happy without one; and where people are deſtitute of this auxiliary engine, one ought to be immediately made; and if gold and ſilver cannot be obtained, ſomething elſe ought to be ſubſtituted. A paper-currency may have all the deſired effects, if things are conducted with wiſdom and prudence.

Some countries have been drained of their caſh, by neglecting to carry on their manufactures, and ſuffering their imports to overbalance their exports; but ſuch evils ought to be prevented by induſtry.

I come, in the next place, to ſhow how people may get money, and grow rich. I ſhall therefore recommend the following, *viz.*

1. Induſtry,

1. Induſtry, becauſe the diligent hand maketh *rich.*

2. The abſtaining from intemperance, idleneſs, playing, gaming, and the keeping of bad company.

3. The uſe of ſuperfluities in apparel and every other thing.

4. The not ſuffering of our expences to overbalance our incomes.

5. The laying up of ſomething againſt a rainy day.

If theſe directions are ſtrictly adhered to, people in general will grow rich; though ſome may be prevented by unavoidable misfortunes, ſuch as ſickneſs, loſſes at ſea, fire, &c.

We cannot live without labour; for the farms and gardens muſt be cultivated, or we muſt ſtarve; and the arts and manufactures muſt be carried on, or we ſhall go naked, let us have ever ſo much money. Therefore, Tom and Dick and Harry, and Jenny and Sally and Nancy, muſt all follow ſome lawful employment for a livelihood.

There are two kinds of poor in the world, which are called by ſome, the Lord's poor, and the devil's. The former are thoſe who are made poor by unavoidable misfortunes; and the latter by ſloth, idleneſs, intemperance, &c. The firſt are objects of charity; but the latter ought to be treated with neglect and contempt.

Some are born poor, and remain ſo by reaſon of oppreſſion, which keeps them in vaſſalage and ſlavery all their days: This is the hard fate of many of the poor Africans in ſome parts of the world.

A TABLE *of the Weight and Value of Coins.*

GOLD.	dwt.	gr.	SILVER.	dwt.	gr.
Engliſh Guinea	5	8	Crown	19	8
Half Guinea	2	16	Half Crown	9	16
Quarter Guinea	1	8	Shilling	3	20
Johannes	18	0	Sixpence	1	22
Moidore	6	18	Dollar	17	8
Dubloon	16	12	Half Dollar	8	16
Piſtole	4	3	Quarter Dollar	4	8
Eagle	11	10	Piaſtereen	3	11 $\frac{1}{5}$
Half Eagle	5	17	Dime	1	17 $\frac{6}{10}$

	Sterling.				NewEngland				New York.			
	£.	s.	d.	q.	£.	s.	d.		£.	s.	d.	q.
An Ounce of Gold is worth	3	17	10	2	5	6	8		7	2	2	2
A Penny-weight	0	3	10	3	0	5	4		0	7	1	1
— Grain	0	0	2	0	0	0	2	$\frac{2}{3}$	0	0	3	1
— Guinea	1	1	0	0	1	8	0		1	17	4	0
— Johannes	3	12	0	0	4	16	0		6	8	0	0
— Moidore	1	7	0	0	1	16	0		2	8	0	0
— Dubloon	3	6	0	0	4	8	0		1	9	4	0
— Piſtole	0	16	6	0	1	2	0		1	9	4	0
— Eagle	2	5	0	0	3	0	0		4	0	0	0
— Crown	0	5	0	0	0	6	8		0	0	9	0
— Dollar	0	4	6	0	0	6	0		0	0	8	0
— Piaſtereen	0	0	10	$3\frac{1}{5}$	0	1	2	$\frac{2}{5}$	0	1	7	0
— Dime	0	0	5	$\frac{4}{10}$	0	0	7	$\frac{3}{10}$	0	0	9	$\frac{6}{10}$

INTEREST

SIX PER CENT.

	1 Month				2 Months.				3 Months				6 Months				1 Year.			
£.	£.	s.	d.	q.	£.	s.	d.	q.	£.	s.	d.	q.	£.	s.	d.	q.	£.	s.	d.	q.
1			1	0			2	1			3	2			7	0		1	2	1
2			2	1			4	3			7	0		1	2	1		2	4	3
3			3	2			7	0			10	2		1	9	2		3	7	0
4			4	3			9	2		1	2	1		2	4	3		4	9	2
5			6	0		1	0	0		1	6	0		3	0	0		6	0	0
6			7	0		1	2	1		1	9	2		3	7	0		7	2	0
7			8	1		1	4	3		2	1	0		4	2	1		8	4	3
8			9	2		1	7	0		2	4	3		4	9	2		9	7	0
9			10	3		1	9	2		2	8	1		5	4	3		10	9	2
10		1	0	0		2	0	0		3	0	0		6	0	0		12	0	0
20		2	0	0		4	0	0		6	0	0		12	0	0	1	4	0	0
30		3	0	0		6	0	0		9	0	0		18	0	0	1	16	0	0
40		4	0	0		8	0	0		12	0	0	1	4	0	0	2	8	0	0
50		5	0	0		10	0	0		15	0	0	1	10	0	0	3	0	0	0
60		6	0	0		12	0	0		18	0	0	1	16	0	0	3	12	0	0
70		7	0	0		14	0	0	1	1	0	0	2	2	0	0	4	4	0	0
80		8	0	0		16	0	0	1	4	0	0	2	8	0	0	4	16	0	0
90		9	0	0		18	0	0	1	7	0	0	2	14	0	0	5	8	0	0
100		10	0	0	1	0	0	0	1	10	0	0	3	0	0	0	6	0	0	0
1000	5	0	0	0	10	0	0	0	15	0	0	0	30	0	0	0	60	0	0	0

SEVEN PER CENT.

1			1	1			2	3			4	0			8	1		1	4	2
2			2	3			5	2			8	1		1	4	3		2	9	2
3			4	0			8	1		1	0	2		2	1	0		4	2	1
4			5	2			11	0		1	4	3		2	9	2		5	7	0
5			7	0		1	2	0		1	9	0		3	6	0		7	0	0
6			8	1		1	4	3		2	1	0		4	2	1		8	4	3
7			9	0		1	7	2		2	5	1		4	10	3		9	9	2
8			11	0		1	10	1		2	9	2		5	7	0		11	2	1
9		1	0	2		2	1	0		3	1	3		6	3	2		12	7	0
10		1	2	0		2	4	0		3	6	0		7	0	0		14	0	0
20		2	4	0		4	8	0		7	0	0		14	0	0	1	8	0	0
30		3	6	0		7	0	0		10	6	0	1	1	0	0	2	2	0	0
40		4	8	0		9	4	0		14	0	0	1	8	0	0	2	16	0	0
50		5	10	0		11	8	0		17	6	0	1	15	0	0	3	10	0	0
60		7	0	0		14	0	0	1	1	0	0	2	2	0	0	4	4	0	0
70		8	2	0		16	4	0	1	4	6	0	2	9	0	0	4	18	0	0
80		9	4	0		18	8	0	1	8	0	0	2	16	0	0	5	12	6	0
90		10	6	0	1	1	0	0	1	11	6	0	3	3	0	0	6	6	0	0
100		11	8	0	1	3	4	0	1	15	0	0	3	10	0	0	7	0	0	0
1000	5	16	8	0	11	13	4	0	17	10	0	0	35	0	0		70	0	0	0

A TABLE of the RATES at which DOLLARS paſs in the American States.

Dollars.	Vermont, New Hampſhire, Maſſachuſetts, Connecticut, Rhode Iſland, and Virginia.			New York, and North Carolina.			New Jerſey, Pennſylvania, Maryland, and Delaware.			South Carolina, and Georgia.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
1	0	6	0	0	8	0	0	7	6	0	4	8
2	0	12	0	0	16	0	0	15	0	0	9	4
3	0	18	0	1	4	0	1	2	6	0	14	0
4	1	4	0	1	12	0	1	10	0	0	18	8
5	1	10	0	2	0	0	1	17	6	1	3	4
6	1	16	0	2	8	0	2	5	0	1	8	0
7	2	2	0	2	16	0	2	12	6	1	12	8
8	2	8	0	3	4	0	3	0	0	1	17	4
9	2	14	0	3	12	0	3	7	6	2	2	0
10	3	0	0	4	0	0	3	15	0	2	6	8
20	6	0	0	8	0	0	7	10	0	4	13	4
30	9	0	0	12	0	0	11	5	0	7	0	0
40	12	0	0	16	0	0	15	0	0	9	6	8
50	15	0	0	20	0	0	18	15	0	11	13	4
100	30	0	0	40	0	0	37	10	0	23	6	8
200	60	0	0	80	0	0	75	0	0	46	13	4
300	90	0	0	120	0	0	112	10	0	70	0	0
400	120	0	0	160	0	0	150	0	0	93	6	8
500	150	0	9	200	0	0	187	10	0	116	13	4
1000	300	0	0	400	0	0	375	0	0	233	6	8

CHAP.

CHAP. XXII.

Concerning the Variation of the MARINER'S COMPASS. *The Cauſe of it is ſuppoſed to ariſe from a Magnetical Effluvia, gradually circulating in the Bowels of the Earth.*

THE Mariner's Compaſs was firſt invented in the year 1229—exhibited in 1260—improved in 1300—and the variation diſcovered in 1538, by Sebaſtion Cabbot.

It appears that the attraction of the load-ſtone was firſt diſcovered by Magnus, a ſhepherd, who obſerved its ſticking to the iron in his ſandals, which were a kind of a ſhoe open at the top, and faſtened with latchets; and that from him the ſtone had its name, *viz.* Magnes.

This ſtone is an iron ore, of different colours and ſolidities; the moſt ſolid is the beſt, and that which is not very heavy. The medical virtues of this ſtone were known in France before the year 1180. It is ſomewhat aſtringent; but is not uſed in medicine in the preſent age, though ſome have lately attempted to cure diſtempers by the magnetical effluvia which ariſes from them.

The attraction of the load-ſtone is at two oppoſite points, called poles; and if the ſtone is

broke into a thouſand pieces, each piece will retain its attracting poles; and thoſe that are ſmall, will attract more in proportion to their magnitude, than the larger. The bodies they attract are, iron, ſteel, and other magnets; but they attract no other metals, unleſs they are combined with theſe things. Hence it is ſuppoſed, that Animal Magnetiſm is of ſome utility in the curing of diſtempers, becauſe our blood is impregnated with ferruginous particles; and that the magnetical effluvia, that iſſues from a load-ſtone by attraction, repulſion, or ſome other way, operates upon the animal fluids, puts them in motion, and aſſiſts nature in throwing off diſeaſes.

The attractive power of the Magnet is the ſtrongeſt in contact, and it decreaſes by a proportion not yet found out: but that point which attracts one end of a touched needle, will repel the other.

Fluvius Gio, of Naples, about the year 1440, was the firſt that diſcovered, that ſteel rubbed with a load-ſtone, and then ſuſpended, would point to the poles of the world; and therefore applied it to navigation.

About ninety-eight years afterwards, Sebaſtion Cabbot found that the needle varied in Great-Britain, about eleven degrees to the eaſtward of the north pole. The variation continued eaſterly near one degree in ſeven years, till it formed an angle with the meridian of London, of thirty degrees. The variation then ſhifted weſtward, and moved with the ſame velocity; and about the year

year 1600, the line of non-variation paſſed over England, and the needle pointed directly to the north and ſouth poles. Since that time, the variation has travelled weſtward, and now makes an angle with the meridian of London, of about 23 degrees. Perhaps it may continue weſtward till the variation ſhall be as great that way as it was to the eaſtward, and then return eaſtward again. If the occidental variation ſhall happen to be as great as the oriental, *viz.* 30 degrees, and it ſhall continue to move about one degree in ſeven years, the line of non-variation will return again to London in about 315 years from this preſent year, 1791; and at that rate, a revolution of the magnetical variation will be completed in about 992 years, as it will be that time in removing from the eaſtern extremity till it returns to the ſame again. I have been informed, that the line of non-variation has lately paſſed ſouthward near Madagaſcar: that it doubled at the Cape of Good Hope, ſloped acroſs the Atlantic, touching Brazil; and that it paſſed from thence, in a ſerpentine courſe, through Canada, over the Weſtern Lakes; and terminated at the north magnetical pole, ſituated about twelve degrees from that of the earth, in the meridian of California: That from thence the line of non-variation paſſed over the earth's north pole, inclining eaſterly, over Siberia, Tartary, China, the Landrone Iſlands, and New Holland, to the other magnetic pole, ſituated near lat. 56 deg. ſouth, and long. 80 deg. weſt from London. But the lines of non-variation, and

the

the magnetical poles, all move weſtward at preſent. I was informed, when I was in Canada, in the year 1788, that the variation in Quebec was 12 deg. weſt, and 11 at Montreal: thoſe cities are about 170 miles from each other. Hence, the further we go weſtward from London, the leſs will the variation be, till we come where there is none; for the variation is greater at London than it is at Quebec, and at Quebec than it is at Montreal.

The whole globe is ſuppoſed to be a magnet; and where there are beds of minerals of a ferruginous kind, the power of attraction is very great upon magnetical needles; and ſurveyors meet with much difficulty in running their lines, by reaſon of the variation of the Compaſs.

Some have ſuppoſed, that Electricity and Magnetiſm have a great affinity to each other; becauſe ſteel, when ſtruck with the lightning, or a ſtrong ſhock of electricity, immediately receives polarity and magnetic attraction.

I have often been requeſted to make known my hypotheſis concerning the cauſe of the variation of the Compaſs—Shall therefore juſt give my opinion upon the ſubject; but muſt obſerve, that Dr. Halley, a celebrated Britiſh Aſtronomer, ſuppoſed that the diurnal motion of the earth was the cauſe of this variation. However, I believe he was miſtaken; becauſe the diurnal motion is always from weſt to eaſt, but the variation is ſometimes one way and ſometimes the other. If the motion of the earth was ſometimes from eaſt to weſt, and ſometimes to the contrary, and the needle followed it, then might we have juſt reaſon

to

to ſuppoſe that the Doctor was not miſtaken; but ſince the motion of the earth is but one way, and that of the compaſs two ways, he was undoubtedly wrong in his judgment.

Some have imputed the cauſe of the variation to high mountains and deep vallies on the ſurface of the land and ſea, and have ſuppoſed that they have cauſed the needles to vary; but I cannot be of that opinion.

In the bowels of the earth, there are beds of ſulphur, iron ore, and other minerals; beſides ſubterraneous veins of liquid fires. Now, it ſeems probable to me, that a ſubtile fluid, of a magnetical kind, is generated by the fermentation of thoſe things; and that it moves gradually in the earth and waters from weſt to eaſt, and from eaſt to weſt, attracting the needle to and from the poles. But I may be miſtaken; and it is ſuppoſed, that there is not one Philoſopher on the globe that is able to determine the matter.

CHAP.

CHAP. XXIII.

A Definition of ANIMAL MAGNETISM, *invented in Germany, taught and exploded in France—but practiſed in England in a different manner from what it was when it was firſt applied in a Medical way—A New Diſcovery.*

ANIMAL Magnetiſm is the art of curing of diſeaſes by a ſubtile fluid ariſing from magnetical bodies, as load-ſtones, ſteel and iron rods, &c. and alſo by a ſubtile effluvia which ariſes from human bodies: the former is now laid aſide in the cure of diſtempers; but the latter is applied for that purpoſe.

The effluvia that ariſes from the human body, is combined with the electrical fluid; and the compoſition is ſuppoſed to be a mixture of fire, air, light, and ſpirit, and ſo very penetrating as to paſs through every part of the human machine: but I imagine there are other kinds of particles in the compoſition.

This effluvia is of a magnetical kind, becauſe our blood is impregnated with ferruginous particles, which the load-ſtone will attract. Hence, it may be proper to call the compoſition and operations, Animal Magnetiſm.

It

It is ſaid that Animal Magnetiſm was firſt invented in Germany, by a *M. Meſmer*, who afterwards taught it in France, where five learned men were choſen to ſee whether it was beneficial or not in the cure of diſeaſes; who declared that it was only an imaginary piece of work, becauſe the experiments uſed to convince them of its reality produced contrary effects.

When this art was firſt made uſe of in a medical way, its Profeſſors employed an apparatus conſiſting of a large tube, which was partly filled with load-ſtones; through the tube a number of iron rods were projected, for the purpoſe of conveying the magnetical fluid to their patients.

The operations were performed by the patient's ſtanding with his breaſt againſt the end of one of the rods, and taking hold of it, firſt with one hand, and then with the other, and by drawing them towards his vital parts; which conveyed the magnetic fluid from the load-ſtones into his body, as it was ſuppoſed. But I have not learnt that it ever produced any violent commotions in the human frame.

Since the invention of this apparatus, I underſtand that our Britannic Profeſſors have made new diſcoveries, whereby they have found, that the magnetical effluvia which ariſes from the human body, is vaſtly more efficacious in the cure of diſeaſes, than that which ariſes from other magnets. Hence, they have exploded the firſt mode of magnetical practice, have wholly laid aſide the apparatus, and make uſe of the new invention only, in the cure of diſtempers.

The

The human body is now converted into an electric or magnetic machine: the arms are the conductors, and the fingers the pointers, for conveying the magnetical effluvia to patients labouring under bodily weakneſs and indiſpoſition.

In the new method of practice, we are directed to proceed as follows:

1. The operator muſt place the patient in a chair before him, and ſome direct that a prayer be made for ſucceſs in the operation.

2. He muſt fix all the energy of his ſoul on the relief of the patient:—His mind muſt be abſtracted from every other thought, and filled with affection, benevolence, kindneſs, pity, ſympathy, conſtant intention, attention, confidence, and compaſſion towards the object preſented for relief.

3. He muſt hold the fingers of both his hands towards the invalid's pericardium; and afterwards move them in different directions, as, horizontally, perpendicularly, obliquely, &c. for the moving of them up and down is ſaid to agitate the bile, and produce eructations, vomitings, purgings, &c. But once in a while they muſt be thrown with great velocity almoſt to the breaſt of the patient, and he muſt rub the part affected with pain or any other diſorder.

Theſe operations are ſaid to excite the magnetical effluvia to flow in proportion as the bodily and mental faculties of the operator are engaged: And if the diſorder of the patient requires it, a *commoto* will be produced; but if a commoto is not needful, a criſis will follow; or if a criſis is not required,

required, the effluvia will operate ſome other way, till the patient is reſtored to health; but the operations muſt be repeated as occaſions may require: and ſome direct their patients to rub themſelves with a cloth.

The motion of the hands of the operator, is called, *treating* the patient. The *commoto* is a diſturbance in the human frame, attended with tremors, eructations, vomitings, &c. without a loſs of the ſenſes: But a criſis is a kind of a thunder ſtorm raiſed in the mortal body by the violence of the magnetical effluvia; it is attended with ſpaſms, convulſions, fainting, loſs of ſenſe, profound ſleep, &c.—But more of this hereafter.

Some of the Magnetical Profeſſors have pretended to cure diſtempers without the motion of their hands. Theſe operations are performed by an act of the mind, which, with all its powers and faculties, muſt be ſet on the patient; and the ſtronger the mental powers are in the operator, the more effectual the remedy is ſaid to be. In this manner they have attempted to cure patients at a great diſtance.

As each body is ſurrounded with an atmoſphere, and charged in a greater or leſs degree with the electrical fluid, or magnetical effluvia; that which has the moſt motion, is ſaid to produce Animal Electricity, and communicate the fluid through the cutaneous pores into the other body, until an equilibrium is reſtored.

The incorporation of the atmoſpheres is ſaid to produce a ſtrange connection between the operator

rator and the patient: The former ſometimes feels in his hands and fingers, heat, pain, prickling, numbneſs, &c. and often a pain in that part of his body or limbs which is affected, which is ſuppoſed to be produced by ſympathy; and the latter, a kind of a warm glowing ſenſation, though ſometimes cold chills will follow.

I have ſeen a woman thrown into a criſis by the violence of the magnetical effluvia. She was greatly convulſed, her limbs were diſtorted, and ſhe had twitchings in her nerves and tendons, a ſtrangulation of her *fauces*, riſing in her throat, difficulty of breathing, threatening a ſuffocation, loſs of voice and ſenſe, paleneſs of face, with a fainting, which was followed by a profound ſleep. At laſt a diaphoriſis came on; and ſundry torrents of the effluvia being poured upon her, which made her ſtart ſurprizingly, ſhe awoke in perfect health, as ſhe informed us.

Some who have paſſed through thoſe dreadful commotions, have pretended they could ſee through ſolid bodies, and that human bodies have appeared tranſparent during the criſis; but theſe phænomena are very rare, as I have been informed.

The magnetical effluvia, like the motion of the ſea, and the operation of other remedies, has different effects on different conſtitutions; to ſome it proves emetic, to ſome cathartic, to ſome both emetic and cathartic, to ſome anodyne, to ſome diaphoretic, to ſome antiphlogiſtic, &c. It contains a complete ſyſtem of the virtues of all the ſimples and compounds that have been derived from the mineral, vegetable,

vegetable and animal kingdoms, according to the imaginations of ſome perſons.

Hence it is a ſpecific for all kinds of diſeaſes. We often hear, that it reſtores the blind to ſight, cauſes the deaf to hear, the dumb to ſpeak, and the lame to walk; but perhaps ſome extol it too high, whilſt others may have too low an opinion of it.

Some have been ſo imprudent, that they have accuſed the Magnetic Doctors of curing diſtempers by the power and influence of evil ſpirits; but I am ſenſible they are miſtaken, for I never knew that Satan was ever transformed into a phyſician, though it appears that he has been transformed into an angel of light, and into a miniſter of righteouſneſs. Vid. 2 Cor. xi. 14, 15.

Although Animal Magnetiſm was exploded in France before the Britannic Magnetiſers had made the late diſcoveries, yet it may be very beneficial to the human race, for ought we know; for there was a time when all the Philoſophers were baniſhed from Rome, notwithſtanding they were the wiſeſt and moſt uſeful men in the world; and in the year 1552, all the books that had been written upon Aſtronomy and Geography, thoſe infallible and uſeful ſciences, were deſtroyed in England, becauſe it was ſuppoſed they were infected with magic. Therefore, we ought not to decry our new art, unleſs we find, upon a due inveſtigation of the matter, that it is of no uſe in the cure of diſtempers. Perhaps it would not have been exploded in France, if thoſe diſcoveries had been made there, which have been made in Great Britain.

I have attended ſome of the magnetical operations; and it appears to me, by the beſt obſervations that I have been able to make, that the cures are performed by the ſtagnated fluids and compacted humours being put into circulation, by the motions of the hands of the operators, the action of the magnetical effluvia, and the powers of imagination in the patients.

Certain it is, that ſome patients will go into a criſis, and that others will be greatly agitated by thoſe operations, whilſt others again are not affected at all; but the Profeſſors that I have been acquainted with, have confeſſed that they could not render a philoſophical reaſon for thoſe things. I have therefore contemplated much upon the ſubject, and it was a long time before I could determine in my mind how thoſe terrible commotions are produced: but on the 15th of February 1791, I came to the following concluſion, *viz.*

That the thunder-ſtorm raiſed in the human frame, called the criſis, with the other ſymptoms, are produced much like the thunder-ſtorms in the terreſtrial atmoſphere. Let us therefore obſerve, that when a non-electric body or cloud comes near to, or joins one that is electric, or highly charged with electrical fluid, the latter will diſcharge itſelf into the former, and produce terrible commotions, 'till an equilibrium is reſtored.

Hence, if by the motion of the hands, or by any other means, a Magnetic Operator becomes higher charged with the magnetical effluvia than the body of the patient he is treating, the effluvia will

will discharge itself from him into the patient until an equilibrium is restored; but a crisis, or some other commotions, will be produced by such discharges.

Again, if the body of the patient is higher charged than the operator, the effluvia will be conveyed from the patient into the operator, and produce those sensations of heat, pain, prickling, and numbness, as before mentioned.

Furthermore, if both bodies are charged alike, neither the patient nor the operator will be affected; because the effluvia is in a state of perfect equilibrium.

Thus have I at last rendered a philosophical reason for the cause of the different operations and effects of the magnetical effluvia in the *corpus humanum*. The hypothesis is new, and entirely of my own invention: I did not receive it from any person; neither have I mentioned it to any body. Yesterday was the time I made the discovery: and I think I am not mistaken; if I am, I hope I shall be convinced of my error.

But the powers of imagination will sometimes have a surprising effect in the cure of distempers; and, perhaps, it has been an assistant in some of our magnetical operations.

London, Feb. 16, 1791.

For further information concerning Animal Magnetism, see a Treatise, intitled, "The Mystery of Animal Magnetism revealed to the World," published by the *Author* of the *American Oracle*.

CHAP. XXIV.

Of the Effects of the PASSIONS *of the* MIND, *ſuch as Anger, Surprize, Fear, Terror, Grief, Vehement Deſire, Sadneſs, and Deſpair—Of the Powers of Imagination—A remarkable Account of Two Women that went into a Criſis, and of two others that went into Convulſions—How a Man was affrighted to death.*

THE Violent Paſſions of the Mind, ſuch as anger, ſurprize, fear, terror, grief, vehement deſire, ſadneſs, and deſpair; often make great ravages in the conſtitution.

Anger increaſes the ſtrength; quickens the motion of the heart, lungs, pulſe, and breathing; throws the whole frame into a tumult, and ſometimes proves fatal.

Surprize, fear, and terror, contract the veſſels in the external parts of the body and limbs, force the blood to the heart and lungs, produce a coldneſs of the extremities, palpitation of the heart, trembling, congeſtions in the ſanguinary veſſels, convulſions, ſwooning, ſyncope, apoplexies, palſies, epilepſies, and ſometimes ſudden death.

Grief, vehement deſire, ſadneſs and deſpair, impair the tone and ſtrength of the nervous ſyſtem,

ſyſtem, weaken and retard the motion of the pulſe, deſtroy the appetite and digeſtion, and produce weakneſs, paleneſs of face, looſeneſs of the ſkin, difficulty of breathing, coldneſs of the extremities, frightful dreams, melancholy, madneſs, ſleepy diſeaſes, hemiplexy, palſy, gutta ſerena, faintings, concretions, palpitations of the heart, polypuſes, diarrhœas, hypochondriac and hyſteric complaints, flatulencies, cachexy, and the ſcurvy.

Theſe paſſions have different effects in different conſtitutions; but in every conſtitution they tend to deſtroy the vital, natural, and animal functions of the body and mind, as,

1. The action of the heart, lungs, and arteries.

2. The manducation of food, and the deglutition and digeſtion thereof.

3. The muſcular motions and voluntary actions.

4. The imagination, judgement, reaſon, and memory.

The power of fancy is often ſo great in pregnant women, as to occaſion moles, alſo marks, and other deformities in the bodies and limbs of their children; and it has been ſaid, that ſome have had the plague and ſmall-pox from a ſtrong imagination only.

Violent love, called love-ſickneſs, has produced a cachexy and the green ſickneſs in women.

Too much intenſe ſtudy, or profound and laborious meditations, conſumes the ſtrength, weakens the nerves, and inverts the regulation of the natural motions.

But although the paſſions of the mind often bring on mortal diſtempers, yet the powers of imagina-

tion have a ſurprizing effect in the cure of diſeaſes. I have been acquainted with a phyſician, who ſaid he was once requeſted to viſit a woman that was ſuppoſed to be very near her end, but imagined that he could relieve her; and as his circumſtances would not admit of his viſiting her, and as he knew ſhe was troubled with an hyſteric complaint, he ſent her ſeveral pills, made of nothing but a piece of bread, with ſtrict orders for her to take them, becauſe ſuch pills had ſaved the lives of thouſands. She accordingly obeyed the orders, and recovered; but imagined the Doctor had wrought a miraculous cure.

Of late I have been informed, that a Magnetic Doctor agreed to magnetiſe his patients at ſuch an hour, when he was about ten miles from them; but at the time appointed he fell into company, and totally forgot his obligation: two women, however, who were his patients, conceited that he was magnetiſing them at the time he had ſet, and went into a criſis.

At about eight of the clock one evening, when I was learning to be a phyſician, three women came running into the houſe, in a great ſurprize: two of them threw themſelves on a bed, and went into convulſions; and the other ſat down in a great chair. I aſked what was the matter? But none of them were able to ſpeak for a conſiderable time. At laſt the one in the chair informed me, that as they were attempting to walk through a field, ſomething roſe out of the graſs, that made a ſtrange noiſe, and appeared like a perſon in a white ſheet. A man who had imprudently wrapped

ped himſelf in a ſheet on purpoſe to affrighten them, came into the houſe immediately, told what he had been about, and that it was not his deſign to have affrighted them to that degree: But all he could ſay or do was in vain; the convulſions continued all night, with ſuch violence that it took three or four robuſt men to hold the patients. This affright was attended with very bad conſequences; for one of the women went into a conſumption, and died in a ſhort time; and the other frequently had convulſions afterwards.

Here we may obſerve, that, by the power of imagination, the woman recovered that took the pills;—that, by the ſame power, the women went into a criſis;—and alſo, that, by the ſame power, thoſe affrighted went into convulſions. It was nothing but imagination: they ſuppoſed they had ſeen the devil; but were miſtaken—no body had touched them, or hurt them; it was only their fancies that made thoſe terrible ravages in their conſtitutions.

I will juſt mention another ſtriking inſtance of the powers of imagination.

A man who was under ſentence of death, was permitted to chuſe that mode of execution which he thought would be the eaſieſt, and he choſe to bleed to death. At the time appointed for the execution, a Surgeon blindfolded the criminal, tied him to a tree, and hung a bladder of warm water privately to his back, which he opened with a launcet, and cried, the "blood is now running! "the poor man has but a ſhort time to live!"

The criminal, on feeling the warm water run down his back, ſuppoſed he was bleeding, fainted away, and died immediately.

As frights are often productive of very bad conſequences, this is to caution all perſons into whoſe hands this may come, againſt affrighting any of the human race, leſt murder ſhall be committed when it is not thought of. The woman I have mentioned, loſt her life by the imprudence of the man that appeared in the white ſheet; and he ſincerely regretted that he was ever guilty of ſuch a wicked tranſaction.

I have frequently thought, that monſtrous ill-ſhaped pictures are no-ways beneficial to mankind, and eſpecially to the female ſex: perhaps they are too often the cauſe of thoſe deformities that ſome children are born with.

CHAP.

CHAP. XXV.

An Account of the SHAKING QUAKERS *in America.*

THIS new ſect ſprang up about the year 1779; and an old woman, called the *Elect Lady*, with twelve diſciples, all of whom were ſaid to be Europeans, were the founders of a new mode of worſhip: they drew thouſands of people after them, and pretended they were veſted with power from on High, to work miracles, heal the ſick, raiſe the dead, caſt out devils, and ſpeak in unknown languages.

This Lady reſided in the north-weſterly part of the State of New-York, where ſhe began to inſtil her tenets into ſome of the people there. Afterwards ſhe rambled from place to place, promulgating her religion, gaining proſelytes in New-England and elſewhere; and ſhe engroſſed the kingdom of Heaven entirely to herſelf and her followers, to the excluſion of all others.

She pretended, her miſſion was immediately from Heaven; that ſhe travelled in pain for her elect; could ſpeak in ſeventy-two unknown languages, in which ſhe converſed with thoſe that had departed this life; that there had not been a true Church on earth ſince the Apoſtles' days, until her's was erected;

erected; that both the living and the dead must be saved, in, by, and through her; must confess their sins unto her, and procure her pardon, or they could not be saved; that she gathered her Church both from earth and hell; as every person that had died since the Apostles' time, until her Church was set up, had been damned; and that they were continually making intercession to her for salvation, which was the occasion of her talking in those unknown tongues.

Those that entered into her Church, were obliged to confess their sins, and deliver up their jewels, rings, necklaces, buckles, watches, &c. to be disposed of as she thought fit.

It has been said, that some of those confessions proved beneficial; for some of the members of her Church confessed they had stolen divers things that had been laid to the charge of innocent persons.

When these people carry on their worship, they pretend to praise the Lord by singing, dancing, jumping, turning round, falling down, tumbling, &c. In the mean time, some will be trembling, groaning, sighing, and sobbing; whilst others are preaching, praying, exhorting, &c. Others will be clapping their hands, shouting, hallooing, screaming, and making such an hideous noise that it may be heard at a great distance, and frequently affrightens people.

They often dance three hours without intermission; and when any of them are tired of praising the Lord that way, they are whipped up by others, to make the worship go on briskly. They dance

dance till they are very much emaciated; the women grow pale, appear like ghoſts or apparitions, or almoſt like deſerters from a church-yard, if I may be permitted to uſe the ſailors phraſe.

They are not allowed to wear ſuperfluities in their apparel: their cloathing is plain, and of a lightiſh colour.

They make no uſe of the Euchariſt, or of water baptiſm, in their churches, are averſe to wars and fightings, and to ſwearing, uſe the plain language, and ſay yea and nay, inſtead of yes or no; but all their tenets are not approved of by the other Quakers.

At particular times they labour very hard at their reſpective occupations, and are very careful that no portion of their time is ſpent in idleneſs.

They pretend they hold a correſpondence with the Saints and Angels, and that they frequently ſee and converſe with the Spirits of their departed friends.

I have been informed, that the number of Shaking Quakers has conſiſted of no leſs than ſix thouſand people; and that many of the men have refuſed to lie with their wives, becauſe they ſuppoſed that they were part of the hundred and forty and four thouſand mentioned in the Revelations, that were redeemed from the earth, and were not defiled with women.

They pretend that they have already been made partakers of the firſt reſurrection, and that on them the ſecond death will have no power.

They do not allow inſtrumental muſic in their churches, becauſe they ſuppoſe that that was ceremonial,

monial, and is aboliſhed. But they pretend, that they carry on their worſhip by the immediate power and influence of the Holy Ghoſt, and that they have Scripture warrants for their practice, as, "Sing unto God;—Praiſe ye the Lord in the "dance;—O clap your hands, all ye people!—"ſhout unto God;—make a joyful noiſe;—fall "down before the Lord, &c."

It is ſaid, that the *Elect Lady*, with one of her brothers, died in the Jerſies ſeveral years ago.

CHAP.

CHAP. XXVI.

An Account of the BIBLE, *and its different Tranſlations—A Short Hiſtory of Dictionaries—and the Epiſtles of Philadelphus.*

ACCORDING to Hiſtory, the Old Teſtament was firſt written in Hebrew, and afterwards tranſlated into Greek, about 275 years before the birth of Chriſt, by ſeventy-two Jews, and by order of Ptolomeus Philadelphus king of Egypt, who had erected a magnificent Library at Alexandria. The Apocrypha was alſo undoubtedly written in the Hebrew tongue; and it is ſaid, that the New Teſtament was firſt wrote in Greek.

The Bible has been tranſlated ſundry times into Engliſh.

	A. D.
King Alfred tranſlated a part of it.	
Aldemus tranſlated the Pſalms into Saxon, in	709
Edfrid, or Ecbert, tranſlated ſome other parts, in - - - - - -	730
Bede tranſlated the whole - -	731
Treviſa publiſhed the whole in Engliſh, in	1357
Tindal's tranſlation brought higher, in -	1534

Tindal's

	A. D.
Tindal's tranſlation reviſed and altered, in	1538
Publiſhed with a preface of Cranmer, in -	1549
Another tranſlation publiſhed - -	1551
The ſame reviſed by ſeveral biſhops, and printed with alterations - -	1560
A new tranſlation was publiſhed by King James's authority, in - - -	1607

The laſt tranſlation is the one in preſent uſe; but it is not every whit perfect. The want of knowledge in the languages, has been the cauſe of ſo many tranſlations and alterations; and it is thought that the preſent tranſlation might be corrected and amended.

In the *Old Teſtament* there are		In the *Apocrypha* there are		In the *New Teſtament* there are	
Books -	39	Books - -	15	Books - -	27
Chapters -	929	Chapters -	183	Chapters -	260
Verſes -	23,214	Verſes - -	6,081	Verſes -	7,959
Words -	592,439	Words -	152,185	Words	181,253
Letters	2,728,100			Letters	838,380

	A. D.
The Bible was tranſlated into French, before	1356
The Vulgate edition was printed -	1462
Engliſh tranſlation firſt allowed in every family - - - - -	1539
Firſt ſuffered to be read in churches -	1549
Firſt tranſlated into Welſh - -	1567
The preſent tranſlation finiſhed - -	1611
No Iriſh tranſlation 'till - - -	1685
Permitted by the Pope to be tranſlated into any language - - - - -	1759

A

SHORT HISTORY OF DICTIONARIES.

IT is ſaid, that there are no Dictionaries, or Lexicons, for either the Latin, Greek, or Hebrew languages, that are more then 380 years old. Hence we muſt conclude, that they had none either in Moſes's, David's, or Solomon's time, nor in the days of Chriſt and his Apoſtles; but that they have been compiled in theſe modern ages.

The Dictionaries, like the Tranſlations of the Bible, have gone through ſeveral alterations and refinements; and about 60 or 70 years ago, ſome words in the Engliſh language had different meanings put to them: and as time rolls on, it is probable that new explanations of ſome words, not only in the Engliſh, but in other languages, will be made.

It is difficult to tell which of the Engliſh Dictionaries are the beſt; becauſe ſome are beſt upon one thing, and ſome upon another. Bailey's, Fenning's, Johnſon's, Entick's, &c. are all good; and there are excellent Dictionaries upon the Arts and Sciences. The like may be ſaid of the Latin, Greek, and Hebrew Lexicons.

CHAP.

THE EPISTLES of PHILADELPHUS.

EPIST. I.

Admonitions againſt the Uſage of bad Language.

TO all People, Nations, and Languages, that dwell in all the world:

2. Grace, mercy, and peace, be multiplied unto you.

3. It hath ſeemed good unto me, to ſend forth this Epiſtle, beſeeching you to forſake vice, and to follow virtue:

4. That whilſt great diſcoveries and improvements are making in the liberal and mechanical arts and ſciences, there may be a reformation amongſt thoſe who uſe bad language:

5. That they would no longer take the Sacred Name in vain, by continuing the practice of profane curſing and ſwearing; as that of ſaying, "I ſwear by God! I ſwear by Jeſus! I ſwear by the Holy Ghoſt! &c.—God damn your blood! God damn your eyes! God damn your ſoul to hell!" &c.

6. That they would entirely leave off the uſe of thoſe unjuſtifiable and nonſenſical expreſſions; as thoſe of ſaying, "That is a damned good man, a damned good woman, a damned good horſe," &c.

7. That

7. That they would no longer weary themſelves by the uſage of ſuch profane oaths, ſuch horrible imprecations, corrupt and abominable language; but that they would ſwear not at all, uſe bleſſing inſtead of curſing, and adorn their converſation at all times with decent language.

8. That they would conſider, that for every idle word, which they have, or may ſpeak, they muſt give an account on the Day of Judgment; and that by their words they will be juſtified, and by their words they will be condemned.

9. I beſeech you again to forſake vice, and follow virtue.

10. Grace, mercy, and peace, be multiplied unto you all. Amen!

The firſt Epiſtle of *Philadelphus* was written from *Anglia*, to the inhabitants of the world, by *Philanthropos*.

The SECOND EPISTLE of PHILADELPHUS.

CHAP. I.

PHILADELPHUS *exhorteth the People to remember what was written in his former Epiſtle.—6. The Tongue an unruly member.*

PHILADELPHUS, a lover of the brethren, and a ſervant of the Moſt High GOD:

2. To all People, Nations, and Languages, that dwell in all the world:

3. Grace, mercy, and peace, be multiplied unto you!

4. It is my heart's desire and prayer to God, that ye may remember the things that I mentioned in my former epistle:

5. That the word thus spoken may have a suitable impression upon your minds; that ye may lay it up in your hearts, and practise it in your lives and conversations; and that it may do you all good, in this your time of trial and probation.

6. Know ye not, that the tongue is an unruly member, full of deadly poison; a world of iniquity, that defileth the whole body; and that if any among you pretend to be religious, and bridle not their tongues, their religion is vain?

CHAP II.

An Exhortation to the Practice of Moral Duties.

I BESEECH you, therefore, my beloved brethren and sisters, that ye abstain from the usage of bad language:

2. That you who are heads of families will be pleased to set good examples before your children and servants, by living holy and exemplary lives, adorned with a good conversation:

3. That ye give those under your care a good education, and bring them up in the nurture and admonition of the LORD.

4. Remember,

4. Remember, that if ye uſe profane curſing and ſwearing, with other ungodly expreſſions, before your children and ſervants, that they will follow the ſame evil example.

5. Be careful therefore of your conduct; and teach thoſe committed to your charge, to ſhun the pollutions that are in the world:

6. To abſtain from bad language, bad company, intemperance, idleneſs, playing and gaming.

7. Frequently remind them of the mortality of their bodies, of the Judgment to come, and of the account they muſt give at the *Dread Tribunal* for the deeds done in the body:

8. That their thoughts, words, and actions, are regiſtred in the books of Heaven; and that they will be rewarded according to their works:

9. That if they do evil, they will be puniſhed with indignation and wrath, tribulation and anguiſh; but if they do that which is good, Glory, honour, peace, immortality, and eternal life, will be their reward in the world to come.

10. Grace, mercy, and peace, be multiplied unto you all. Amen!

The ſecond Epiſtle of *Philadelphus* was written from *Anglia*, to the inhabitants of the world, by *Philanthropos*.

THE

THIRD EPISTLE of PHILADELPHUS.

The People exhorted to worſhip the CREATOR—4. *ſuppreſs Vice*—5. *live peaceably*—7. *and to keep a Faſt, &c.*

TO all People, Nations, and Languages, that dwell in all the world:

2. Grace, mercy, and peace, be multiplied unto you!

3. It hath ſeemed good unto me to ſend forth this third epiſtle, beſeeching you to render all proper adoration and obedience to the great *Creator*, *upholder*, *preſerver*, and *governor* of the univerſe:

4. That ye ſuppreſs atheiſm, ſuperſtition, idolatry, ſedition, treaſon, rebellion, and every thing that may tend to diſhonour the Creator, and diſturb the public tranquillity:

5. That ye live peaceable and quiet lives, in all godlineſs and honeſty; fearing GOD, honouring Kings, and thoſe that are or may be in authority in the kingdoms and countries where ye do or may reſide:

6. That ye be ſubordinate to every good and wholeſome law, and cultivate and improve thoſe things that may promote your own felicity, and the happineſs of mankind in general.

7. Keep

7. Keep ſuch a faſt as the Lord hath choſen; break the bands of wickedneſs, undo the heavy burdens, and let the oppreſſed go free.

8. Deal your bread to the hungry, clothe the naked with a garment, and provide ſhelter and entertainment for thoſe who are or may be deſtitute of houſe and home.

9. Be kind to ſtrangers, to widows, and to the fatherleſs.

10. Honour the aged, obey your parents, ſerve your maſters.

11. Abuſe not yourſelves, nor your fellow-creatures, nor even the brutal creation.

12. Do good to all men as ye have opportunity, follow peace, walk honeſtly.

13. Remember the things that I have communicated unto you.

14. Grace, mercy, and peace, be multiplied unto you all. Amen!

The third Epiſtle of *Philadelphus* was written from *Anglia*, to the inhabitants of the world, by *Philanthropos*.

CHAP. XXVII.

The PHILOSOPHER'S *Religion deſcribed—The Place he would chuſe for his Abode, and how he would conduct himſelf through Life, &c.—A new Song on the Works of Righteouſneſs.*

LEST any ſhould be in diſtreſs,
To really know what I profeſs,
In things of a religious kind;
I therefore do relate my mind
To all enquirers, and make known
The principles which are my own.
I worſhip the Great GOD of might,
Whoſe wond'rous ſtrength is infinite!
Truly reſiſting, at all times,
Whatever leads to vicious crimes:
By no means taking worldly pelf;
Loving my neighbour as myſelf:
Helping the poor that are in need;
To ſtrangers very kind indeed:
I ſtrive as much as e'er I can,
To get to be a perfect man;
By imitating of the bleſs'd,
In doing things that's for the beſt.
My principles are ſuch as theſe;
And men may call me what they pleaſe—
A Turk, a Chriſtian, or a Jew,
Or one of the Paganic crew.

Compoſed in America,
in July 1786.

THE

THE PHILOSOPHER's CHOICE.

1.

IT is my choice to find a place,
Upon this earthly globe,
Within ſome healthy pleaſant ſpace,
To ſettle mine abode:

2.

Where I from tyrants cruel rage,
And robbers, may be free;
Where evil men do not engage,
To ſpoil true liberty:

3.

Where neighbours are exceeding kind,
And virtue doth increaſe;
And I, with a contented mind,
May daily live in peace:

4.

With a good wife, replete with ſenſe,
Whoſe manners are refin'd;
Whoſe temper's ſweet as innocence,
And all her actions kind.

5.

Too much eſtate I never choſe:
Wou'd be ſo rich indeed,
That I may help myſelf, and thoſe
That often ſtand in need.

6

Thus independent, live would
In ſome convenient place,
And ſpend my time in doing good
Amongſt the human race.

7.

My times of leiſure I would ſpend
In ſtudies that are deep:
The benefit of what I penn'd,
I'd let the people reap.

8.

And when my days on earth ſhall ceaſe,
I'd chuſe, among the bleſt,
A crown of glory, honour, peace,
And everlaſting reſt.

Compoſed at *Weſtminſter*, in the Kingdom of *Great-Britain*, April 27, 1789.

A NEW

A

NEW SONG,

ON THE WORKS OF RIGHTEOUSNESS.

WHERE dwells the man that dares ſuppreſs
The Godly Works of Righteouſneſs?
The wretch that would attempt the thing,
Ought on a gallows high to ſwing.
The works of righteouſneſs,
Wherever they've been wrought,
In this world's wilderneſs,
Much happineſs have brought:
They are of great and mighty weight
To mankind in this mortal ſtate.

Ye noble friends, humane and wiſe!
We hardly know what profits riſe,
How much doth ſpring we ſcarce can gueſs,
From the bleſs'd works of righteouſneſs.
The works of righteouſneſs, &c.

How pleaſing to a righteous ſoul,
To do good deeds without controul,
To help the brethren in diſtreſs,
By gen'rous acts of righteouſneſs!
The works of righteouſneſs, &c.

How

How galling to a pious mind,
To ſee the ſons of men unkind,
To ſee them oft too much oppreſs,
Inſtead of working righteouſneſs!
The works of righteouſneſs, &c.

My worthy friends, we ſhall be bleſs'd
With glory, honour, peace, and reſt,
If we at all times truly preſs
After the thing call'd righteouſneſs.
The works of righteouſneſs, &c.

O Righteouſneſs! thou lovely thing!
Much profit thou doſt always bring:
The boundleſs good I can't expreſs,
Obtain'd by thee, O Righteouſneſs!
The works of righteouſneſs,
Wherever the've been wrought,
In this world's wilderneſs,
Much happineſs have brought:
They are of great and mighty weight
To mankind in this mortal ſtate.

Compoſed at *London*, Feb. 3, 1791.

CHAP.

CHAP. XXVIII.

Of the STATE *and* CONDITION *of the Human Body; and of the Birds, Beaſts, and Fiſhes; Trees, Plants, and Herbs—All muſt die—Whether the Soul had an Exiſtence before the Creation of Man—The happy Condition of the Dead.*

THE Human Body is a compoſition of the four elements; that is, of the earth, air, fire, and water. It is nouriſhed and ſupported by the vegetable and animal productions, the circumambient air, and ſundry liquids. It is conſtantly flying off by inſenſible perſpiration, and other evacuations; and is ſo very mutable, that it changes once in ſeven years, and becomes entirely new. The old body is diſperſed among the elements; and the new body is generated out of the materials appointed for nutrition.

The Divine Artificer hath breathed into this body the breath of life; hath implanted in it an immortal ſoul, which is endowed with rational powers and faculties, and is made capable of worſhipping, knowing, ſerving, and enjoying the *Author* of its being, *viz.* the *Great Incomprehenſible Fountain* of *life* and *motion*.

This

This body meets with various degrees of pleaſure and pain; and being but a temporary building, continues but a ſhort time in this mortal ſtate. It is expoſed to an innumerable train of accidents and diſeaſes; and as it is appointed that all men ſhall once die, at laſt the appointed deſtruction comes. The body becomes a lifeleſs lump, and returns to the elements out of which it was formed. The terreſtrial part returns to the earth, the aërial to the air, the igneous to the fire, the aqueous to the water, and the ſpirit to *him* that gave it.

Thus have I deſcribed the compoſition of the human body, with the ſtate, condition and fate of all mankind.—But not only the human race, but the birds, beaſts and fiſhes, trees, plants and herbs, are formed out of the four elements, and undergo various changes whilſt their lives continue; but at laſt they die, and their bodies are diſperſed among the elements.

Some animals, and ſome vegetables, live a long time; but others are very ſhort-lived. Infants often die, that never ſaw light. But we only live at the preſent time; for the time we have lived is paſt and gone, and that which we have to live is not yet come:—Hence, we only live at the preſent moment; and our lives are as a vapour, that appeareth for a very little ſeaſon, and then ſuddenly vaniſheth away. Mankind are like the graſs, that is flouriſhing in the morning, but in the evening it is cut down and withereth. The time of our continuance in this mortal ſtate is ſo very uncertain, that we cannot tell whether we

we ſhall live one moment, or a conſiderable number of years; but when we become old, we know that we muſt die in a ſhort time, according to the courſe of nature.

I have frequently been aſked, whether I thought that the ſouls of men had an exiſtence before the formation of their bodies? And my anſwer has been, that it is probable they had; for when the Almighty had formed the body of Adam out of the duſt of the ground, he breathed into his noſtrils the breath of life; and that breath undoubtedly had an exiſtence before it entered into the body formed for its reception, becauſe it proceeded from the Great Fountain of life and motion.

Again—When the Almighty converſed with Job, he ſaid, "Where waſt thou when I laid the foundations of the earth?" Vid. Job, xxxviii. 4. It is therefore apparent, that Job was ſomewhere in the univerſe when the world was created, though his body was not formed, nor his ſpirit put into it.

The very materials with which our preſent bodies are compoſed, were undoubtedly created when the world was, though they were not framed into theſe earthy tabernacles. Hence, we may in that ſenſe be called as old as the earth, or the ſun, moon and ſtars, if the earth was created as ſoon as thoſe luminaries.

Death is only a change from this ſtate to another,—as our bodies return again to the elements, and our ſpirits to him that gave them; and the dead being at reſt, are totally free from the cares, troubles, and vexations of a mortal life. None

are

are afraid of loſing their lives or eſtates, by thunders, lightnings, earthquakes, inundations, ſtorms, or tempeſts; nor of being deſtroyed by the war, famine, or peſtilence. Theſe ſcenes of trouble, theſe perils and dangers, are all over and gone.

SHORT is our paſſage through this nether world;
For ſoon, by death, we from the ſtage are hurl'd.
The tender infants, in their lovely bloom,
Are often hurry'd to the ſilent tomb!
Adults grown up, nay ſome of ev'ry age,
By cruel *death*, are taken from the ſtage!
The high, the low, the rich, the poor, the ſmall,
By the great *king of terrors* ſoon muſt fall!
The richeſt man, (it cannot be deny'd)
Who with good things moſt amply is ſupply'd;
Whilſt he does live, doth grief and trouble find,
Is oft in pain, and vexed in his mind:
At laſt he's ſtruck a fatal ſtroke by death!
Down falls his body, and off flies his breath!
But where it goes, or how far it doth fly,
No mortal man can tell below the ſky.
The elements that in the body are,
Return to thoſe from whence they taken were.
Thus duſt to duſt, and air to air, we find,
And heat to heat, are ſoon again combin'd;
Water to water, alſo, ſoon doth flow,
And the whole maſs to diſſolution go!
Await, O man! thy doom; for 'tis the fate
Of every creature in this mortal ſtate:
But when death comes, the ſpirits riſe on high,
Of godly ones who *in the* LORD *do die*.
Thus whilſt their bodies are behind at reſt,
Their pious ſouls with happineſs are bleſs'd.
O happy ſtate, in which the dead are caſt!
Their pain is gone, and all their trouble's paſt:
Need no phyſician to give them relief;
Are free from pain, from ſorrow, and from grief;

And

And from the rage of all the ſons of ſtrife,
And the vexations of a mortal life.
The ſland'ring tongue, and the back-biting knave,
Cannot hurt thoſe within the ſilent grave:
Nor can the thief, who robs by night and day,
Nor any murd'rer who kills on the way.
By no means can the tyrant them oppreſs,
Nor any mortal lead them to diſtreſs.
When roaring winds bring up the thick'ned cloud,
And the grum thunder rumbles out aloud;
When the earth quakes, and lofty cities fall;
When places ſink, and can't be found at all;
When inundations o'er the land ariſe,
And burning mountains burſt towards the ſkies;
When famine and the peſtilence doth rage,
And wicked nations in a war engage;
When blood and carnage greatly doth expand,
And deſolation overſpreads the land,
And boiſt'rous tempeſts rage upon the ſea:
Then are the *dead* from danger wholly free.
They're not afraid of being hurt, or ſlain,
Like wretched mortals who alive remain.
Let not the living, then, at death repine,
Since it was made by God, an *act divine*,
To raiſe the juſt,—the *huſband*, *child*, and *wife*,
From ſcenes of trouble, to a better *life!*

CHAP.

CHAP. XXIX.

The Ages of the PATRIARCHS—*Thoughts on the Wearing of Mourning, and on the Burying of the Dead under Churches.*

ACCORDING to the Scriptures, the people lived much longer in the antideluvian world than they have ſince, as will appear by the ſubſequent Tables:

BEFORE THE FLOOD,

		Years
Adam	lived	930
Seth	——	912
Enos	——	905
Canaan	——	910
Mahaleel	——	895
Jared	——	962
Enoch	——	365
Methuſelah	——	969
Lamech	——	777
Noah	——	950

SINCE THE FLOOD,

Shem	lived	600
Arphaxad	——	438
Salah	——	433
		Eber

		Years
Eber	lived	464
Peleg	——	239
Rue	——	239
Serug	——	230
Nahor	——	148
Terah	——	205
Abraham	——	175
Iſaac	——	180
Jacob	——	147
Joſeph	——	110
Aaron	——	123
Moſes	——	120
Joſhua	——	110

Hence it is evident, that the days of man have ſhortened by degrees; for Adam lived 930 years, and Joſhua only 110. Some, in theſe modern times, have lived till they were upwards of 150 years old, though but a very few live till they are an hundred years of age.

It is very natural for people to mourn when they have loſt their relations and friends; and I have obſerved, that ſome mourn till they greatly impair their health and ſenſes.

The practice of mourning ſeems to be very ancient; for Abraham mourned for Sarah, vid. Gen. xxiii. 2.—And Joſeph mourned ſeven days for his father, with a great and very ſore lamentation. Vid. Gen. l. 10.—Alſo, the children of Iſrael mourned thirty days for Moſes. Vid. Deut. xxxiv. 8, &c.

It has been ſaid, that ſome people have hired mourners to weep and make a lamentable howling at funerals.

Some of the ſavage nations have cut themſelves, and torn their fleſh to pieces, in conſequence of their loſing their relations. And ſome of the American Indians lay their dead upon ſcaffolds, where they erect ſeats for the mourners, who go and ſit by the corpſe every day for a conſiderable time, and weep and howl for their departed friends; but if they cannot go themſelves, they hire others to howl in their room.

In thoſe parts of Chriſtendom where I have been acquainted, the people in general have made uſe of black cloaths, ribbands, veils, weeds, buckles, &c. for mourning. But the Spaniards formerly wore white garments for that purpoſe; and it would do juſt as well as black in theſe times, if it was the faſhion.

Many families in America have been injured in time paſt by running into debt for mourning; for it was once the cuſtom for every one in a family to dreſs in black, when they loſt their relations; and if they were not poor, to give a pair of gloves to every one that attended a funeral. This practice was ſometimes not only injurious to thoſe who loſt their friends, but to thoſe that ſold mourning; for they often loſt their property, by truſting people that were unable to make payment.

But theſe exceſſes have been reſtrained in ſome places by the acts of the legiſlative aſſemblies, who,

who, if I miſtake not, have prudently ordered that nothing ſhould be worn for mourning, but black gloves, a weed, or a ribband, &c. which expence was but trifling.

It was formerly cuſtomary in New-England, for every perſon that had an inclination, to attend a funeral without being invited. The parſon of the pariſh alſo attended, and prayed with the mourners at the houſe of the deceaſed. After prayers, if the deceaſed was an adult, not leſs than four, and often ſix bearers were choſen to carry the corpſe to the grave.

The corpſe was then moved out of the houſe, and laid upon a bier placed on a table, where the coffin was opened, and the mourners and others viewed the dead body; which being afterwards nailed up, a pall was put over it. Upon the pall white gloves were laid for the bearers. Gloves were then given to the parſon and others that attended. The bearers put on their gloves, and walked with the bier, &c. on their ſhoulders, to the burying-place; the mourners walking two deep, next to the bearers; and both men and women fell into the proceſſion, and walked in a regular and decent manner. If the burying-ground was at a conſiderable diſtance, the bearers were relieved on the way by the people, who took turns in carrying the corpſe: but the bearers took their places again when they came near the place of interment; and when they had arrived, they laid down the corpſe, took off their hats, and put the body into the grave, which was filled by the by-ſtanders, the mourners ſtanding in the mean

time at the head of the grave. When the burial was over, the oldeſt male among the mourners returned thanks to the people, for their kindneſs in attending the funeral. No orations, nor prayers, were made at the grave by the parſon, as he had prayed before at the houſe of mourning.

Sometimes the people walked back with the mourners in proceſſion, and were refreſhed at their houſe with a ſupper, &c. But the Quakers did not wear mourning, nor allow their coffins to be painted black, nor was a black pall uſed: their coffins were of the natural colour of the boards they had been made of.

The funeral ceremonies were different in the various governments. In Canada, the people ſang as they went with a corpſe to the grave; and I have been informed, that they buried ſhoes, candles, money, &c. with the dead; and alſo, that that is the cuſtom in other Catholic countries.

In the State of New-York, the people are invited to attend funerals. They aſſemble at the time appointed. The corpſe is carried to the grave by ten or twelve bearers; and the men walk in proceſſion, but the women do not go to the grave.

The parſon that attends the funeral, and the phyſicians that attended the deceaſed, each of them receives a ſcarf, that is, linen enough for a ſhirt, which they wear to the grave over their right ſhoulders, tied in a large knot under their left arms. Theſe are not only worn at the funerals, but at church the next Sunday morning.

When

When the corpſe is interred, they return in proceſſion to the houſe of mourning, where they find the tables ſpread, and furniſhed with ſpiced wine, pipes and tobacco. They fall to drinking and ſmoaking: the converſation runs upon a variety of ſubjects, ſome of which are very unſuitable for ſuch ſolemnities. But they often have a ſupper, and the houſe of mourning is converted into a houſe of feaſting. This, however, is not the practice at every funeral in that government.

At Philadelphia, the people are invited to attend funerals. The parſon walks before the bearers: and if the deceaſed was a woman, the ladies walk in proceſſion next to the mourners, and the gentlemen follow after; but if the deceaſed was a man, the gentlemen walk before the ladies: and the parſon delivers an oration at the grave.

The people are invited to funerals at Charleſtown in South-Carolina. At the houſe of mourning, they receive cakes, wine, punch, &c. and alſo a ſprig of green roſemary wrapped in a piece of paper, which they carry to the burying-ground, and throw into the grave whilſt the people are burying the corpſe. Here the parſon either delivers a ſermon, or makes an oration, at the time of the interment.

But ſometimes, when the ſnow is deep in America, or when the travelling is bad, the corpſe is carried in a carriage to the grave.

The funeral ceremonies are different in Europe, as well as in America. At ſome places in England, they ſing a hymn, whilſt they are burying

the dead. I underſtand that this method is practiſed by the Moravians, and by the Methodiſts.

In ſome places of America, they bury their dead under churches; but it is not ſo much practiſed there, as it is in ſome parts of Europe. This cuſtom was firſt introduced in England in 750.

I have been aſked, whether I thought it is prudent to bury the dead under the churches? And my anſwer has been in the negative; becauſe the infectious effluvia of putrifying bodies may be ſo very penetrating, as not only to impregnate the ſurrounding earth with its poiſonous qualities, but even to eſcape through the bounds of its confinement, infect the air, and ſpread contageous diſtempers amongſt the living, which muſt lay a foundation for augmenting the congregation of the dead. But how far my hypotheſis may ſeem rational, I leave to the judgment of Philoſophers, and the Gentlemen of the Faculty, to determine.

When people die of putrid diſorders, their bodies ought to be buried ſoon, to prevent the ſpreading of infectious diſtempers. But if they die in a fit of the apoplexy, or very ſuddenly ſome other way, it may be proper to keep them a few days; becauſe ſome have come to life, that have appeared to be dead.

In divers parts of America, the graves fall in, and become level with the ground within a year after a dead body has been buried; but in other parts, they do not fall in perhaps in the courſe of twenty years.—I have been aſked to give a reaſon for theſe things. My anſwer has been, that the earth is impregnated in ſome places with ſalineous,

ſalineous, nitrous, and other particles, which preſerve bodies from conſuming, and that from hence ſome graves do not fall in for a long time; and alſo, that it is impregnated in other places with copperas and other qualities which are capable of diſſolving bodies in a ſhort time, and that from hence it is that ſome graves fall in, in leſs than a year after a body has been buried; for I have been informed, that a piece of beef will be conſumed in a few days, if it is put down into the copper-mines in Connecticut.

Moreover, I rendered another reaſon, that is, the rage of putrefaction in ſome bodies, which may cauſe them to diſſolve, with the coffins that contain them, ſooner than others; for one body has a greater degree of putrefaction than another. I knew four young women, who were twins, that took the dyſentery, and were all dead and buried in ſix days. They were laid within about eighteen inches of each other, and where there did not appear to be any difference in the qualities of the earth. The grave of the one that had the greateſt degree of putrefaction, fell in in a ſhort time; but the others did not fall in for a conſiderable number of years. This I imputed to the violence of the diſorder in the putrifying body.

It is cuſtomary in great towns and cities in England, to bury the dead upon one another. A gentleman informed me in 1790, that he ſaw a grave dug juſt by Weſtminſter-Abbey, and that he counted fifty-three ſkulls that were thrown out of it, beſides other bones:—He alſo ſaid that the ſmell was ſo very diſagreeable, that he could but juſt endure to ſtand and count the ſkulls.

Now, who can ſuppoſe that the earth is not greatly impregnated with a contagious infection, where ſo many diſtempered putrifying bodies have been buried in ſo ſmall a place as one grave? and, who can ſuppoſe that this ſubtile effluvia does not creep through the earth, and impregnate the air in a greater or a leſſer degree with its poiſonous qualities?

To conclude, I cannot, for the reaſons I have mentioned, think it is prudent to bury the dead under churches, nor very near to them; and as there is room enough in the world, they may be carried to a proper diſtance, and buried, without being put one upon another. It is our duty to exert ourſelves in promoting whatever may tend to preſerve our own lives and thoſe of others, and to ſuppreſs every evil practice that may render ourſelves and our fellow-creatures miſerable.

It is a manifeſt abuſe of the creation, to deck and adorn ourſelves with things entirely needleſs. —As to the wearing of mourning, it is certain that it can do the dead no good, nor the living any further than that of covering their nakedneſs, and ſcreening them from the inclemency of the weather. The burying of gold and ſilver with the dead, and other things that can do no good, is alſo an abuſe of the creation;—and it is the duty of every rational creature to guard againſt exceſs in theſe things. If people have any thing that they can ſpare, let them give it to the poor; inſtead of burying it in the ground, or waſting it for ſuperfluities.

CHAP.

CHAP. XXX.

Thoughts on the SLAVE TRADE—*The Thunder of the Law, the Thunder of the Goſpel, and the Thunder of the Conſcience, forbid this abominable Practice.*

ONE thing is practiſed in ſome parts of Chriſtendom, which is an abomination to the Lord, and a diſgrace to the human race. It is that of ſtealing our African brethren, carrying them from their country, ſelling them like horſes, ſheep, or ſwine; and the keeping of them in cruel bondage all their days, without the allowance of any freedom, or even leave to return to the place of their nativity, to viſit their families and friends.

Many of thoſe miſerable objects who have the misfortune of being born of ſuch ſtolen and enſlaved parents, have but a gloomy proſpect before them; becauſe they are obliged to ſpend the whole of their days in vaſſalage and ſlavery, without enjoying that liberty which is the natural right of every man: And not only ſo, but they are liable to be ſold from place to place, like animals belonging to the brute creation.

This

This abominable practice commenced in Portugal, in the year 1443; in England, in 1562: and at Virginia, in 1620:—But, to the honour of the Britiſh Parliament, the Negroes are not enſlaved in Great-Britain at the preſent time.

Surely thoſe that follow this illicit trade, muſt be as hard-hearted as old wicked Pharaoh, the tyrannic King of Egypt:—nay they are more wicked then he was; for he only oppreſſed thoſe he had under his own government, within the limits of his kingdom, without being guilty of the horrid ſin of going abroad to follow the practice of theft and robbery. Hence he was guilty of but one crime. But our tyrannical wretches are guilty of two: the firſt is that of man-ſtealing; and the ſecond is that of bringing their fellow-mortals, with their poſterity, into cruel bondage and ſlavery, as long as life continues.

If the LORD, on hearing the cry of the oppreſſed Iſraelites, came down and puniſhed the Egyptians with a number of heavy judgments, when they were guilty of but one crime; of how much ſorer puniſhment muſt thoſe be counted worthy, who are guilty of two abominable crimes? —But though ſuch offenders may ſometimes eſcape puniſhment in this life, yet, by their hardneſs and impenitence, they treaſure up to themſelves wrath againſt the day of wrath, and the revelation of the righteous judgment of God, who will render to every man according to the deeds done in the body.

Let

Let thoſe that live in the practice of theſe abominations, liſten,

1. To the thunder of the Law;
2. To the thunder of the Goſpel; and,
3. To the thunder of Conſcience.

1. To the thunder of the *Law*.—The Law expreſsly ſays, "Thou ſhalt not ſteal;" and again, "He that ſtealeth a man, and ſelleth him, ſhall ſurely be put to death." Hence, thoſe that follow the Slave Trade, ought to be executed.

2. To the Thunder of the *Goſpel*.—"Indignation and wrath, tribulation and anguiſh, upon every ſoul of man that doth evil: For the wrath of God is revealed from Heaven, againſt all ungodlineſs and unrighteouſneſs of men."—"For the Law was not made for a righteous man, but for the ungodly and profane, for murderers of fathers, for murderers of mothers, for perjured perſons, for man-ſtealers," &c.—It is therefore evident, that thoſe who ſteal, ſell, and enſlave their brethren, diſobey the Goſpel, and make themſelves liable to the dreadful puniſhments denounced againſt ſuch rebellious ſinners.

3. To the thunder of *Conſcience*.—This tells you, that all nations were made by the Almighty: that they are all entitled to freedom, though it hath pleaſed the *Former* of their bodies to make them of different colours and complexions: That man-ſtealing, and the bringing of your brethren into cruel bondage, is a tranſgreſſion of the Law, and a diſobedience of the Goſpel;

Goſpel: That whatſoever ye would that men ſhould do unto you, ye ſhould do even ſo unto them: that you do not do as you would be done by, when ye practiſe theſe abominations.

That ſhould the Negroes follow your evil example; ſhould they come into your country, and ſteal yourſelves, your fathers and mothers, your brothers and ſiſters, your wives and children; and carry both you and them, bound, and almoſt ſtarved, into Africa; there to be ſold, put under taſk-maſters, and kept in cruel bondage all your days; do you not think that ſuch treatment would be very cruel and unjuſt? Surely the thunder of conſcience muſt ſay, *yes*.—Why then do ye follow this infamous, this diabolical, diſgraceful, and abominable practice? Surely ſuch offenders ought to be branded with infamy, ſpurned from ſociety, and treated with neglect and contempt, for diſgracing Chriſtendom with their atrocious conduct.

Is it not very ſtrange that this diſgraceful kind of theft, oppreſſion, and tyranny, has not been ſuppreſſed by the Legiſlators in thoſe countries where ſuch abominations are practiſed?—Why do they not follow the laudable example of the Britiſh Parliament? Why do they not follow that of the Legiſlators in New-England, New-York, the Jerſies, and Pennſylvania, who have liberated the poor Africans from the ſhackles of their bondage?—It is ſaid, that this abomination is ſtill practiſed in the governments South of Pennſylvania, in the Weſt-India iſlands, and in the Spaniſh dominions: But thoſe that follow this evil practice, muſt certainly

tainly incur the diſpleaſure of the *Moſt High*, and expoſe themſelves to his wrath and indignation.

Liſten, therefore, O ye tranſgreſſors! to the thunder of the Law, to the thunder of the Goſpel, and to the thunder of your own Conſciences. Refrain from your evil conduct;—forſake the practice of man-ſtealing;—break your bands of wickedneſs;—undo heavy burthens;—and let the oppreſſed Africans be releaſed from the ſhackles of their bondage, and the chains of their vaſſalage and ſlavery, leſt ye debar yourſelves *from entering into that reſt which remains for the People of God.*

London, March 5, 1791.

CHAP.

CHAP. XXXI.

Who ought to be licenſed to keep PUBLIC-HOUSES—*Of Drunkenneſs and Gluttony; how Drunkards ought to be managed—Of the Evils which attend Gaming, Lying, and Stealing—A Caution againſt the keeping of Bad Company.*

NO perſon ſhould be licenſed to ſell ſpiritous liquors, unleſs he can be well recommended for his ſobriety and good behaviour; and he ſhould be ſtrictly enjoined to beware of entertaining bad company, that of drunkards in particular, whoſe exceſs in this abominable vice not only proves ruinous to themſelves and families, but often an inlet to every ſpecies of wickedneſs, to the hurt of mankind in general.

An inn-keeper ought to be well furniſhed with every-thing neceſſary for the entertainment of travellers. He ought to allow no gaming in his houſe; becauſe it has a tendency to waſte both time and money, and alſo to diſturb ſober people, who may be inclined to take their reſt. He ought alſo to decline giving his town-cuſtomers liquor, when he obſerves they have got enough; and to clear his houſe of their company, when it is time for them to go home to their wives and

and families. If they inſiſt upon having more liquor, his preſenting them with a little ſmall-beer or water will perhaps ſatisfy their thirſty cravings, and may be the means of their going home ſoberly.

Drunkards ought not to be allowed to haunt inns, taverns, or ale-houſes; as they not only do hurt to themſelves, families, and connections, but alſo to the houſes they frequent, by preventing decent people from entering them to do buſineſs, for which purpoſe they are particularly intended, as well as for entertainment. Some go to the ale-houſes on Saturday evenings when they have received their wages, where they ſtay till their money is ſpent, while their families are perhaps in want of the neceſſaries of life.

The abominable vice of drunkenneſs, which prevails ſo much under the ſun, burns up beauty, haſtens age, makes a man a beaſt, a ſtrong man weak, and a wiſe man a fool. It deſtroys the credit, reputation, wealth, and health of millions; as many a good conſtitution has been ruined by it. By the immoderate uſe of ſpiritous liquors, gouts, dropſies, rheumatiſms, conſumptions, and many other diſtempers, are generated, which cut down great multitudes, before they have lived half their days: Numbers of poor women and children, who once lived in affluence, are reduced to beggary and want, by the imprudent conduct of thoſe that waſte their eſtates by intemperance. Nay it is thought that intemperance kills more than the ſword.

A drunkard

A drunkard is a plague to himſelf, a trouble to his family, a diſgrace to his neighbours, and a peſt to ſociety. He is like a ſhip without helm or ballaſt, under full ſail to deſtruction. He is deſpiſed by all good people; they treat him with neglect, and ſhun his company. When intoxicated, he is incapable of taking care of himſelf; in danger of falling into the fire, and water; of being killed by carts, coaches, waggons and horſes, when he attempts to walk abroad; of periſhing with the cold in ſevere weather, and of being robbed and murdered in the ſtreets and highways.

People who are apt to drink to exceſs, ſhould be watched and governed by their friends; for if they are not capable of taking care of themſelves, it ought to be done by others.

If any perſon intoxicated with liquor comes into an inn, he ought to be turned out, to prevent the company from being interrupted; or if the weather is ſtormy, and he is in danger of periſhing with cold, he ought to be put into ſome apartment by himſelf, and allowed only water till he becomes ſober.

As many are much indiſpoſed after drinking too much, I will preſcribe a cure for that dangerous diſtemper:

1. Let the drunkard's head be raiſed.
2. Dip a ſponge in vinegar, and hold it to his noſe.
3. Let him be blooded.
4. Give him water to drink.
5. Pour cold water on his head.

6. Give

6. Give him a cathartic, or inject a laxative *enema*.

7. Put his feet into warm water.

8. If he recovers, keep him from ſpiritous liquors.

Gluttony is another vice that prevails too much; and though it does not deſtroy the ſenſes by intoxication, like ſpiritous liquors, yet it hurts the vital, natural, and animal functions, and generates dangerous diſtempers.—The wiſe man ſays, *The drunkard, and the glutton, ſhall come to poverty.* Prov. xxiii. 21.—Again, the Apoſtle Paul ſays, *Drunkards*, &c. *ſhall not inherit the kingdom of God.* 1 Cor. vi. 10.

Gaming ought by no means to be allowed in any kingdom or ſtate; becauſe it is injurious, not only to individuals, but to the community at large. It is attended with a train of evil conſequences, ſuch as loſs of time, credit, and reputation. It leads people into intemperance, ſuch as drunkenneſs, &c.; generates contentions, diviſions and animoſities amongſt friends; occaſions wranglings, quarrellings, bad language, and fightings—and ſometimes the loſs of lives.—Hence, people that are one day very rich, may the next day be very poor; and families in affluent circumſtances to-day, may be reduced to poverty and diſtreſs to-morrow.

Both drunkards and gameſters, that perſiſt in their evil courſes, ought to be confined in workhouſes, and kept in ſome lawful employment; by which means they may in time, upon reflection, become uſeful members of ſociety.

If any man, woman, or child, ſhall be inclined to undo themſelves, let them take to lying and ſtealing, or either of them may anſwer alone for the purpoſe: For, beſides the danger of fines or impriſonments, the whip or the halter, the liar and the thief are expoſed to the hatred of all good people, and even to that of one another. Liars cannot be believed, even when they ſpeak the truth; and if any thing is ſtole, it will be laid to a thief's charge, whether he is guilty of the crime or not. In ſhort, liars will not believe one another, and thieves are jealous of each other when goods are ſtolen.

Theſe miſerable animals are always in a wretched condition; for wherever they are known, people are afraid to harbour them in their houſes.

Liars may do much damage in places where their characters are not known, by defaming the innocent; and if they are permitted to bear falſe witneſs, they may be guilty of the horrid crime of ſhedding innocent blood.

People of the beſt credit and reputation are therefore always in danger of being injured by liars and thieves. Hence ſuch villians ought not to be ſuffered to run at large; but ought to be confined in ſome place from which they cannot eſcape, and there kept to hard labour.

The Legiſlature of the Maſſachuſetts have contrived a very laudable mode of puniſhment for thieves, and other villains whoſe crimes have not been ſo heinous as to bring the offenders to the gallows.—They are ſent to Caſtle William, which is an iſland ſurrounded by water, and ſituated about

about three miles from Boſton, from which they cannot eaſily make their eſcape. There they are kept to hard labour, the profits of which are converted to the good of the public. Some are confined for one year, ſome for two, three, &c. and ſome for life. Their puniſhments are in proportion to the magnitude of their crimes.

This laudable example ought to be followed by all nations; for it is much better for the community to have ſuch vagabonds kept in lawful employment, than to have them confined in priſons at the expence of the public, or to allow them to ſtrole from place to place, robbing and ſtealing for a livelihood.

Let all liars remember, that whilſt they live in that wicked practice, they are the children of the devil, who is the father of lies. John viii. 44.—That the Lord is the hater of a falſe witneſs, that ſpeaketh lies. Prov. vi. 17—19.—That all liars ſhall have their part in the lake that burneth with fire and brimſtone, Rev. xxi. 8. except they repent and reform from their evil courſes. Let him that ſtole, ſteal no more; but let him labour with his hands, to get ſomething for his maintenance, and to make reſtitution to thoſe he has injured by his atrocious conduct. Eph. iv. 28.

I.

IF you're at home, or on a route,
Beware of knaves that run about
To rob and ſteal;—of them be ſhy,
And guard yourſelf when they come nigh.

2.

A correſpondence have you not
With any thief, or drunken ſot:
Haunt not the taverns, nor grog-ſhops,
With gaming beaus, and ſilly fops.

3.

To keep with them always refuſe,
Who frequently bad language uſe;
From ev'ry gang that is too rude,
And all thoſe wretches that are lewd.

4.

Leſt they, before you are aware,
Lead you into ſome dreadful ſnare,
Deſtroy your innocence and fame,
And bring upon you a bad name.

5.

Thus, if bad company you ſhun,
To vice you'll not be apt to run:
In good repute you may remain,
And ſhun much trouble, grief, and pain.

CHAP.

CHAP. XXXII.

Of WHOREDOM, viz. *That of Idolatry, Adultery, and Fornication.*

THERE are ſeveral kinds of Whoredom; ſuch as,

1. The worſhipping of falſe gods.

2. Adultery, or an unlawful connection between married perſons.

3. Fornication, or an illegal correſpondence between thoſe that are unmarried.

All theſe abominations are called whoredom.—Let us therefore obſerve, That when the Iſraelites forſook the worſhip of the Moſt High, and paid homage to idols, it is ſaid that they went a-whoring after their own inventions. Vid. Pſal. cvi. 39.—That when David had an unlawful correſpondence with the wife of Uriah, it was ſaid that he committed adultery. Vid. 2 Sam. xi. 4.—And Shechem committed fornication with Dinah. Vid. Gen. xxxiv. 2.

Whoredom of every kind is an abominable vice. It tends to deſtroy our felicity in this life, and our happineſs hereafter; for beſides the ſin of not worſhipping the True God, whoredom raiſes a ſpirit of jealouſy between a man and his wife; pro-

duces contentions, diviſions and animoſities; breaks up families, and blaſts their reputation. It alſo hurts the credit and character of unmarried perſons, and reduces them to beggary and want, which excites them on to commiit other abominations, ſuch as theft, robbery, murder, &c.—By means of a whoriſh woman, a man is brought to a piece of bread, ſays Solomon, Prov. vi. 26. So alſo, by the means of a whoriſh man, a woman is brought to a piece of bread, ſays the *Author* of the *American Oracle*.

How does the world ſwarm in this degenerate age, with a great multitude of miſerable wretches, who, by reaſon of whoredom, are reduced to ſuch poverty and diſtreſs, that they are deſtitute of houſe and home, of food, raiment, and other things neceſſary for their ſubſiſtence!

In this deplorable condition they remain till they are thrown upon the town, confined in work-houſes, or caſt into priſon, for theft or ſome other crime; and the poor children of ſuch degenerated parents muſt be maintained by the pariſh, or by the charity of ſome friends, otherwiſe they muſt periſh with hunger.

Thoſe that live in the practice of theſe vices, paſs through much care, trouble, and vexation of ſpirit. The whoremonger is continually afraid of being ſeized by an officer, and either committed to priſon, or of having his eſtate taken from him, to ſupport thoſe vicious, lewd, debauched creatures, with whom he has had a correſpondence.—The whore is alſo afraid of the miſeries ſhe may bring upon herſelf by her evil conduct. In ſhort, both

live

live in fear that their reputations will be deſtroyed, and their conſtitutions ruined, by the reception of a certain *virus*, which will be mentioned in the ſubſequent chapter.

Let all perſons who have any regard for the preſervation of their health, wealth, credit, reputation, and ſalvation, ſhun the company of lewd men and women. This may prevent that anxiety, poverty and diſtreſs, which will inevitably come upon thoſe who keep their company, and follow their evil practices.—Let whoremongers, adulterers, and fornicators, forſake their evil conduct, and live pious and virtuous lives for the future; and let them remember the words of the Apoſtle, *viz.* that marriage is honourable in all, &c. but that whoremongers and adulterers God will judge. Heb. xiii. 4.

Various puniſhments have been inflicted for idolatry, adultery, and fornication. Under the Moſaical law, idolatry and adultery were puniſhed with death, and fornication by a fine. The Babylonians, Arabians, Tartars, Indians, Javans, and Mexicans, made adultery and fornication a capital crime. The Turks drowned ſuch women, and put the men to great torture. The Hungarians executed thoſe guilty of ſuch crimes. In Great Britain, adulterers are fined, and fornicators are obliged by the law to pay a certain ſum of money for the ſupport and maintenance of their baſtard children.

In the Maſſachuſetts, adulterers are puniſhed by fines, impriſonments, ſetting on the gallows, ſtanding in the pillory, and by being whipped at

the poſt.—Fornicators are fined; and if a married man and woman has a child within ſix or ſeven months after they have been married, they are obliged to make a public confeſſion before the church and congregation unto which they belong, or they are debarred from having their children chriſtened.

Some of the clergy have made ſuch unfortunate perſons acknowledge, that they had been guilty of a breach of the ſeventh commandment, *viz.* of committing adultery. Thus they have been induced to tell a lie before the *Lord*, the church, &c.; for adultery cannot be committed when both of the perſons are unmarried.—Some again have made them acknowledge, that they had been guilty of the ſin of uncleanneſs; and others, that they had been guilty of the ſin of fornication.

To conclude, neither Chriſt nor his Apoſtles have impoſed any ſuch degrees of puniſhment under the goſpel diſpenſation; and reaſon and common ſenſe tells us, that fines, impriſonments, &c. cannot forgive ſins. Therefore, let all thoſe who have been guilty of ſuch abominations, "go their way, and do ſo no more, leſt a worſe thing ſhould come upon them."

CHAP.

CHAP. XXXIII.

Of the VENEREAL DISEASE—*Its terrible Effects on the Human Body—How to cure the Diſtemper.*

THIS malady is called the plague of Venus, the venereal peſtilence, the French diſeaſe, &c. It was not known in Europe till it was brought from the Spaniſh Weſt-Indies into Spain, by Chriſtopher Columbus's men, in 1493.

In 1494, it was carried from Spain to Italy; and in 1495, it was ſpread in Naples and France; and from thoſe countries it was ſpread over Europe. Not only Europe, but America, and all parts of the habitable world where trade and commerce are carried on, have become infected in a greater or leſſer degree. It has lately found its way among the innocent inhabitants of the iſlands newly diſcovered in the Southern Ocean, who being ignorant of the method of cure, have been in a deplorable condition: and I have been informed, that it is endemic in Peru.

When it firſt began in the Spaniſh Weſt-Indies, or what it proceeded from, I believe no mortal can tell; but it has been ſuppoſed that it originated from a vegetable or an animal poiſon. However,

However, it is but a ſuppoſition, without any ſubſtantial proof.

Perhaps this diſorder has done more damage in Europe, than the diſcovery of America has done good; for it has ſlain thouſands, and ruined the conſtitutions of an innumerable multitude of people. Every one of the human race is liable to take this terrible malady. The high and the low, the rich and the poor, the young and the old, the honeſt and the diſhoneſt, are continually expoſed to it. An honeſt huſband may take it of a diſhoneſt wife; and an honeſt wife may take it of a diſhoneſt huſband.

The *virus* may be communicated various ways; for, beſides that of an impure contact and coition with an infected perſon, a nurſe may take it, by ſuckling a child born with it, or otherways infected; and a child may take it, by ſucking a woman labouring under that complaint. It may alſo be taken by kiſſing a perſon whoſe mouth is ulcerated, and by the reception of the poiſon in any part where the ſkin is off. I knew a phyſician that was afflicted with an univerſal taint, who affirmed to me that he took it by handling a venereal patient when he had a wound in his finger. In ſhort, wherever the *virus* can get through the ſkin, it will enter into the maſs of the fluids, and lay a foundation for a confirmed *lues*.

The ſtronger the *virus* is, the ſooner it will operate. I heard a patient ſay, that he felt it immediately after he had taken the infection; that the poiſon ſeemed to run like a wild-fire, and in

leſs than 24 hours produced a cordee, and other bad ſymptoms.

Sometimes it is very ſlow in its operation; but the ſymptoms generally appear in three or four days after the infection has been received. It operates different ways in different conſtitutions. It uſually begins with a ſenſation of heat, and pricking pain in making water: then comes on a running of virulent matter, of a white, yellow, green, or bloody colour; followed with a ſtricture, a cordee, phimoſis, paraphimoſis, ſtrangury, buboes, chancres, warts, cutaneous eruptions of a red, white, or blue colour; nocturnal pains, inflammations, ſwellings, excoriations, ulcers, fiſſures, opthalmies, loſs of ſight, deafneſs, carious bones, ſpinas, ventoſas, nodes, tophi, ganglions, gummas, caruncles, gangrens, and mortifications.

Sometimes the *virus* runs to the noſe, and eats it off.—When the running is ſtopped, or what is improperly called a *gonorrhœa ſicca* comes on, then the *virus* enters into the maſs of the blood, and the patient is in a dangerous ſituation.

Men, by reaſon of their different formation, have more complaints than the women; and children born with the diſorder, are worſe to cure than either.

The ancient phyſicians were entirely unable to cure this terrible malady, till they diſcovered the virtues of the *argentum vivum*. This diſcovery was made about the year 1522, which was 29 years after the poiſon was firſt brought into Europe. This is an excellent ſpecific, and the only remedy

remedy I believe that will perform a *radical cure*, though it muſt be ſometimes combined with other medicines. But it has been ſaid, that the North American Indians can cure themſelves when half rotten, with a decoction of the *rad. lobelia*; but I never in all my travels could get any of it.

The methods of cure muſt be according to the conſtitution and circumſtances of the patient. The venereal *virus* muſt be deſtroyed; the parts defended againſt its acrimony; and the irritation which it cauſes abated. Hence phlebotomy, a diluting antiphlogiſtic regimen, joined with mercurials, and ſundry vegetable productions, muſt be exhibited; and every thing avoided that tends to inflame the blood. I have often obſerved, that mercurial frictions are very efficacious when the taint is univerſal; but they muſt be uſed with caution. The warm bath and mercurials joined with opium, are alſo very beneficial.

Let thoſe that may have this diſorder, apply immediately to ſome ſkilful phyſician, inſtead of tampering with medicines themſelves, or of applying to quacks, who impoſe upon the ignorant world with noſtrums which will not perform a radical cure. It is a pity this *virus* cannot be expelled out of the world;—but how it can be done I know not; unleſs all the people were put under a courſe of phyſic at one time, and even then I believe it would be difficult.

CHAP.

CHAP. XXXIV.

How to chuſe a good WIFE, *and a good* HUSBAND *—How young Gentlemen and Ladies ought to conduct themſelves if they intend to get married—How Huſbands and Wives ought to treat each other, bring up their Children, and behave to Servants—Of the Duties of Children and Servants to their Parents and Maſters.*

THE chuſing of a good wife, and a good huſband, are matters of very great importance; becauſe a diſagreeable companion muſt make a man, or a woman, very unhappy:—Therefore, let thoſe unmarried Gentlemen, who may intend to enter into the bands of matrimony,

Chuſe one that has an honeſt mind,
Who is to moral good inclin'd;
Endow'd with decency and ſenſe,
A temper mild as innocence.

And let the Ladies, who may be inclined to marry,

Chuſe one that's pleaſing to their ſight,
Whoſe character is very bright;
Whoſe temper's good, whoſe noble mind
To pious actions are inclin'd.

Thoſe

Thoſe who have ſuch excellent tempers and diſpoſitions, are the only proper perſons to enter into a married ſtate; becauſe they will live in peace and harmony, and make good members of ſociety.

If Harry pays his addreſſes to Nancy, under the pretence of marriage, ſhe ought to conſider of the matter well, before ſhe conſents to enter into the ſolemn obligation.—Hence ſhe ought to know,

1. Whether he has common ſenſe.
2. Whether he is good-natured, humane and generous.
3. Whether he is honeſt in his dealings.
4. Whether he uſes bad language.
5. Whether he is a drunkard.
6. Whether he waſtes his time and money in gaming.
7. Whether he keeps good company.
8. Whether he has been obedient to his parents and maſters.
9. Whether he is induſtrious, or addicted to idleneſs.
10. Whether he belongs to a creditable family; though none that behave well, ought to be deſpiſed for the ill conduct of their relations.
11. Whether he is a man of his word, and punctual in fulfilling his obligations.
12. Whether ſhe likes his perſon, religion, converſation, and behaviour.
13. Whether it is probable he can ſupport her in ſickneſs and in health, &c.

Now

Now if ſhe ſhall find that Harry is poſſeſſed of but few of theſe properties, and addicted to many failings, or that ſhe cannot love his perſon, religion, &c. ſhe had better not marry; becauſe, if ſhe does, ſhe may be miſerable afterwards.—And Harry, before he attempts to marry, ought to conſider of all theſe things; and to find by appearances at leaſt, that Nancy's perſon, ſenſe, temper, and conduct, will be agreeable.

Many people ruſh too ſuddenly into a married ſtate, without weighing theſe things well in their minds before-hand.—Hence, a foundation is laid for contention and diſcord, as well as for much trouble and vexation.

Nancy may undo herſelf by marrying; for, if Harry is a drunkard, thief, liar, gameſter, ſcold, &c. he may treat her ill, waſte her eſtate, and bring diſgrace upon himſelf and his family.

And perhaps if their profeſſions of religion are different, they may quarrel about the doctrines of original ſin, election, reprobation, infant baptiſm, &c. and like different ſectaries, be ſo puffed up in their vain imaginations, that they will cenſure each other to the infernal regions, uſe indecent language before their children and ſervants, and learn them to follow a bad example.

The Catholics may ſuppoſe that their principles are right, and that thoſe who diſſent from them are heretics:—The Lutherans may ſuppoſe that their opinion is beſt: And the Calviniſts may ſuppoſe that they are God's elect; and that thoſe that do not think and act as they do, will not go to Heaven. The like may be ſaid of ſome other ſects;

ſects; who, if they are unequally joined in matrimony, may contend about their religious ſentiments, and make themſelves unhappy. But the philoſophers are perſuaded, that, in every nation and ſect, they that fear God, and work righteouſneſs, will be ſaved; and they wiſh that that uncharitableneſs which ſo much prevails amongſt the different denominations of Chriſtians in the preſent age, may ſubſide—with all the ſuperſtitious notions which they have imbibed from their cradles, concerning their own righteouſneſs, and the unrighteouſneſs of others; and alſo that charity, humanity, brotherly love, and pure religion, might overſpread the globe, as the waters cover the ſeas.

I have been informed, that a young man, who is a Calviniſt, lately viſited a young woman called a Univerſaliſt, with a deſign of marrying her. After ſome time, ſhe found what principle he was of, and that if they married, they ſhould not agree about religion; and for that reaſon, ſhe carefully warded off the impending danger, by refuſing to let him viſit her again upon the ſubject of matrimony.

But although a man and his wife's being of a different ſentiment concerning religion, commonly generates ſtrife, yet ſometimes ſuch perſons have lived happily together. If they are of eaſy tempers and diſpoſitions, and can conſent to let each other enjoy a free liberty of conſcience without moleſtation, they may live in peace as long as life continues.

A young lady, or gentlaman, who inclines to get married, ſhould be good-natured, go cleanly dreſſed,

dreſſed, refrain from intemperance, idleneſs, gaming, bad company, bad language, and all kinds of vice. They ſhould be charitable, courteous, kind and humane, obedient to their parents and maſters, and, in a word, they ought to walk honeſtly; for all vicious practices tend to bring them into diſcredit, and to hinder matrimony.

Sometimes good men have been married to bad women, who have afterwards reformed, and made good wives. And good women have ſometimes been married to bad men, who have grown better, and made good huſbands.—Sometimes both have appeared to be bad, yet have done well: Again, when both have appeared to be good, they have proved bad after marriage.

A huſband ought to be very exemplary in his life and converſation. He ſhould be no liar, thief, or drunkard; not a uſer of bad language, nor contentious, or covetous; but very kind and humane to his wife, provide well for her in ſickneſs and health, and always remember the words of the Apoſtle, *that men ought to love their wives as their own bodies*, Eph. v. 28.

A wife ought to be very pious and virtuous, a chaſte keeper at home, good and obedient to her own huſband. She ought to be no ſcold, tattler, brawler, or back-biter; but a promoter of peace and harmony, in her family, and amongſt her neighbours. She ought to be kind to her huſband and family, and to take good care of them both in ſickneſs and health, and to remember the words of King Solomon, *that a virtuous woman is a crown to her huſband*, Prov. xii. 4; *And that*

it is better for a man to dwell in the corner of a houſe-top, than with a brawling woman in a wide houſe. Prov. xxix. 9.

Parents ought to ſet good examples before their children; and, according to the advice of the Apoſtle, to bring them up in the nurture and admonition of the Lord. The ſame ought to be done to ſervants.

Both children and ſervants ought to be kept in ſome lawful employment, and out of bad company, leſt they learn the pollutions that are in the world. But if parents and maſters uſe profane curſing and ſwearing, their children, &c. will follow the ſame evil example; for, according to the vulgar ſaying, "As the old cocks crow, ſo crow the young ones."

Parents are often to blame for ſcolding at, and beating their children and ſervants, when they are not to blame. Thoſe brought up in this way, are the moſt hard to govern; for where parents and maſters are continually fretting, ſcolding, and ſtriking thoſe under their care, without any apparent cauſe, they are ſoon diſcouraged, and become hardened, ſo that they will not move when they are bid, without the violence of a blow.—Many of the poor infants have been ruined by being ſtruck on their heads, which has ſometimes cauſed deafneſs, a loſs of ſenſe and ſight: therefore, this cruel practice ought to be ſuppreſſed.

Children and ſervants may be ſpoiled this way, juſt as a cruel maſter may ſpoil a horſe that has high life, and is full of good nature; for if he mounts ſuch a horſe, and falls to whipping of him,

him, he may ſoon wear him out, bring down his ſpirits, and diſcourage him ſo that he will not go at all unleſs he is beat.

The prejudice of education, and the influence of tradition, has a ſurpriſing effect upon children, and even upon grown perſons; for the latter generally (though not always) retain the principles they imbibed in their infancy to their dying day. Hence, if you teach a child that the Heavens and Earth were created by Mahomet, it will retain that belief, unleſs the voice of Reaſon ſhall teach it better—It is therefore neceſſary, that children ſhould have good principles inſtilled into them when they are young; for if a child is brought up in the way it ſhould go, when it is old, it will not be apt to depart therefrom.

There are ſeveral vanities which have prevailed in ſome places where I have been acquainted. As,

1. Some parents, who were able, would not help their children when they have come of age. Hence, they have been provoked to anger, and brought into a ſtate of diſcouragement.

2. Some parents have given near all of their eſtate to one of their children only, and have turned the reſt out naked into the world. This has generated a ſpirit of envy amongſt brethren, and been the cauſe of much contention and diſcord.

3. Some have given all their eſtate to their children, who have become ſpendthrifts, and thus turned themſelves, with their fathers and mothers, out of houſe and home.

But all theſe extremes ſhould be carefully guarded againſt. Parents ought to help their children when it is in their power, and to conſider that all muſt be provided for and ſupported through life, and that one child is an heir to an eſtate as well as another; and to remember that he that giveth all his ſubſtance to one child, and nothing to the reſt, ſows diſcord amongſt brethren, which is a thing that the Lord doth hate. Prov. vi. 19.

Again, parents ought to keep enough of their eſtate in their own hands, to ſupport themſelves with as long as life continues.

Children ought to obey their parents, and ſervants their maſters: For it is ſaid, *Honour thy father and mother, that thy days may be long upon the land*, &c.; and, *Children obey your parents in all things, for this is well pleaſing to the Lord*; and, *Servants, obey your maſters*, &c. He that curſed his father or his mother, was to be put to death under the Moſaical law; and the Apoſtle, under the Goſpel diſpenſation, mentions the diſobedience of parents as a capital crime. Rom. i. 30.

Where children are obedient to their parents, and ſervants to their maſters, a ſpirit of union and harmony generally exiſts in families, providing the parents and maſters are exemplary in their lives and converſations; but where a diſobedience prevails, contention and diſcord, poverty and diſtreſs, frequently enſue.

Children

Children ought to be very kind to their parents in their old age, as well as at all other times, and eſpecially if they have become poor: For, *they that provide not for their own, and eſpecially for thoſe of their own houſehold, have denied the Faith, and are worſe than Infidels.*

CHAP. XXXV.

What becomes of the Fuel when it is conſumed, the Water when it is boiled away, and the Fire when it is gone out—What produces Fire—How to prevent the Bread from being burnt—The advantages of the Heat of the Sun—Of the Qualities of the Earth, Air, Fire, and Water.

WHEN the Fuel is conſumed, it is all gone off by fumigation into the atmoſphere, except the terreſtrial parts, or aſhes, which are left behind: And the ſame may be ſaid of the water when it is boiled away; for it is all gone off by evaporation, unleſs it was impregnated with earthy particles; and they, like the aſhes, are left behind.

As to the Fire, it is totally gone off into the air, when the fuel is conſumed; where it mixes with the other elements, and thus becomes inviſible, until it is put in motion by the violent agitation of different bodies. Hence, the ſmiting of flint and ſteel together, will produce viſible ſparks, which will kindle into a flame, if they have fuel to feed them; and burn till the fuel is conſumed, unleſs it is put out by water, or pent up from the ſurrounding air.

The fire all flies off into the atmoſphere, when it is put out by water; and if a pot of burning brimſtone

brimſtone is covered with a lid, the fire will go out, for it cannot burn where there is a fixed air. About one quarter of the air we breathe in is moveable, and the other part is fixed: the moveable is what cauſes the fire to burn, and it is alſo the cauſe of animal life.

Let an oven be ever ſo hot, it will not burn the bread, if it is immediately ſtopped tight; but if the air has an ingreſs into the oven, the bread will be burnt. Perhaps this information may be ſerviceable to bakers.

Of the Heat of the Sun.

BY obſervations it doth now appear,
The land and ſea, with the whole atmoſphere,
Whilſt they in their diurnal courſes run,
Do all expand when heated by the Sun.
Hence, by the heat of our great Sol alone,
The earth ſwells larger in the torrid zone,
Than at the centre of her ſteady poles,
Through which her body on an axis rolls:
The heat expands the globe on ev'ry ſide;
But cold condenſes, and makes things ſubſide.
Hence mountains, iſlands, towns, and cities be,
With other things upon the land and ſea,
At noon more high than when the ſun doth riſe,
Or when he ſets in yonder weſtern ſkies.
If great Sol's heat did not all things expand,
On the wide ſea, and on the ſolid land,
No tides wou'd riſe, no murm'ring winds wou'd roar:
No waves wou'd daſh againſt the rocky ſhore;

No thunder-ſtorms, no rain, no hail, no ſnow,
No miſt, no dew, no mock ſuns, no rain-bow,
No northern lights, no vapours wou'd appear,
Nor clouds condenſe in all the hemiſphere.
As there'd be nothing but a fixed air,
'Twou'd make the weather keep exceeding fair.
No flames wou'd riſe, no wood at all wou'd burn,
Nor any metals into liquids turn.
All things wou'd die—If you will me believe,
No animal upon the globe cou'd breathe:
In ſolemn ſilence ev'ry thing wou'd be,
Upon the land and the extended ſea;
All calm, all dead, not any move at all
Upon the ſurface of this earthly ball.

Of the Four Elements.

THE whole terraqueous globe is a compoſition of earth, air, fire, and water; and all its productions are compoſitions of the ſame elements. I ſhall treat of each of theſe elements in their order.

I. *Of the Earth.*

THERE is but one kind of earth, one of air, one of fire, and but one of water; however they may be impregnated by the different ſubſtances with which they are combined or mixed.—Hence the earth may be mixed with metallics, the air and fire with different fumigations, and the water with various kinds of particles.

Earth, in a chemical ſenſe, conſiſts in that part which cannot be melted in the fire, nor extended by

by a hammer. It is called *caput mortuum*, becauſe it cannot be raiſed by diſtillation, nor diſſolved by ſolution; being a thick, dry matter, that is left in the bottom of a ſtill or furnace, after vegetable, metallic, or other operations have been performed.—This kind of earth is not ſo pure as the other elements.

There are five kinds of mineral earths, three of the vegetable, and as many of the animal.

The Mineral Earths are,

1. The *cryſtalline*, as flints and cryſtals; they are friable in a ſtrong fire.

2. The *calcareous*;—a ſtrong fire will convert it into an acrimonious calx.

3. *Argiliaceous*—the pureſt of clays, boles, and ochres.

4. *Talky*—this is ſcarcely alterable by a vehement fire.

5. *Gypſeous*, Engliſh talc, gypſa. A gentle heat will reduce them to a fine powder.

The Vegetable Earths are,

1. That from the burning of ſoft ſpongy and farinaceous plants.

2. That from the burning of harder and leſs ſucculent plants.

3. That from the burning of wood.

Animal Earths are,

1. That from the burning of ſhells.

2. That

2. That from the burning of bones, horns, and hoofs.

3. That from the burning of blood, fleſh, and ſkins.

Oyſter ſhells, crabs eyes and claws, red and white coral, pearls, bezoar, chalk, ſome marles, lime-ſtones, marbles, and ſpars, are called *inſipid* earths, becauſe they are capable of abſorbing acids.

Gold, ſilver, iron, copper, braſs, lead, tin, mercury, antimony, biſmuth, zinc, ſulphur, ſalts, rocks, diamonds, precious ſtones, with all the other mines and metals, are *terreſtrial* ſubſtances.

Gold is the heavieſt of all metals, and tin is the lighteſt. The former is above nineteen times, and the latter ſix times heavier than an equal bulk of water.

Theſe earths have an abſorbing quality.

II. *Of the Air.*

THE Air is a tranſparent fluid ſubſtance, which environs and compreſſes the globe on every ſide. It is ſubject to expanſion by the heat, and to condenſation by the cold: Hence, it riſes higher in the torrid, than it doth in the frigid zones. Its height, at a medium, is from 45 to 50 miles. It may be compreſſed into a very ſmall compaſs, and expanded to a great magnitude, being very elaſtic and ponderous. Vid. *The cauſe of the blowing of the winds*, p. 168, &c.

The preſſure of the air is ſo very great upon our bodies, that, to every ſquare inch, we bear near 15 pound of avoirdupois weight: Hence, if a man has 12 ſquare feet in his body and limbs, the preſſure will be almoſt equal to 135 tons 1716 pounds weight; which would cruſh him to atoms, were it not for the equilibrium between the air within him and the ſurrounding atmoſphere.

The air is a part of the compoſition of all bodies; hence it unites and preſerves their parts. It is neceſſary for the preſervation of animal life, and the generation of flame, as I hinted before. Some animals cannot live without it; but toads, vipers, eels, fiſhes, and all kinds of inſects, will live in a receiver, when the air has been exhauſted by an air pump.

This element is a fluid, that cannot be converted into a ſolid by any method hitherto invented. Its particles are ſo very ſmall, that they cannot be diſcovered through a microſcope, although they are larger than thoſe of fire. Fire pervades glaſs, oil, water, &c. and will paſs through many compact ſubſtances; whilſt air is reſiſted by ſtrong paper. The air is the objects of taſte and of the effluvia to the noſe: It is alſo the vehicle and conductor of ſound; for if there was no air, there would be no ſound at all.

Although, in reality, there is but one air; yet, by reaſon of its being impregnated with different qualities, it is called by different names: as,

1. The atmoſpheric air—This abounds with ſulphur, and conſiſts of an acid phlogiſtion.

2. A fixed

2. A fixed air, formerly called *gas*; but of late has been called artificial, factitious, and mephitic air.

3. An inflammable air—This conſiſts of an acid vapour and phlogiſtion: it is ten times lighter than the common air, and will take fire like gunpowder, and cauſe an exploſion.

4. A nitrous air—This is generated by the pyrites and other metallics.

5. An acid air—This is obtained from metals with the ſpirit of ſalt, or from this ſpirit without metals.

6. An alkaline air—This is the vapour of volatile alkaline ſalt.

The common air is combined with all bodies in different proportions, and lies in a fixed ſtate; but when it is let looſe by fermentation, putrefaction, or other cauſes, it reſumes its former elaſtic powers.

The quantities of fixed air in the following bodies have been found as under: *viz.*

In yellow wax	$\frac{1}{10}$	the part of its weight.
courſe ſugar	$\frac{1}{10}$	
oyſter ſhells	$\frac{1}{6}$	
muſtard ſeed	$\frac{1}{6}$	
peaſe	$\frac{1}{3}$	
tartar	$\frac{1}{2}$	
human blood	$\frac{1}{48}$	

All kinds of air are capable of becoming fixed; becauſe they may be imbibed in ſome ſubſtance or other, and ſo become fixed in them.

A fixed

A fixed air is an antiſeptic, which powerfully reſiſts putrefaction, and is one and an half heavier than the common air. Water imbibes more than its bulk of this air; flame is extinguiſhed, animals are deſtroyed, and even the vegetables ſuffer by its influence.

A heavy air compreſſes the cutaneous pores, dilates the lungs, and drives the blood to the head, which produces the vertigo, head-ach, pleuriſy, peripneumony, and quinſey.

Too light an air produces the gout, rheumatiſm, ſpitting of blood, hypochondriac and hyſteric complaints, nervous and intermitting diſorders, by retarding the circulation of the blood, and diminiſhing the external reſiſtance to the fluids contained in the pulmonary veſſels.

A hot air quickens the circulation, promotes perſpiration, enlarges the humours, generates acrimony, and weakens the fibres. Hence, if the air ſuddenly becomes cold, it produces bilious and other fevers.

A cold air conſtringes the fibres, diſtends the lungs, condenſes the humours, diminiſhes the perſpiration, and cauſes external inflammations, quinſies, pleuriſies, and peripneumonies.

A dry air cauſes fevers, by ſhrinking the ſolids, and incraſſating the fluids.

A moiſt air relaxes and weakens the conſtitution, diminiſhes the perſpiration, makes the blood watery, and produces the dropſy, cough, aſthma, intermitting and nervous complaints.

A hot, moiſt air, is very unwholeſome; becauſe it relaxes and generates putrefaction: But when it is infected with a malignant miaſmata, and other poiſonous exhalations, it is very pernicious.

Let all thoſe who may be heated by hot air, be very careful of going into that which is cold, becauſe it may produce dangerous diſtempers. The fumigations of tobacco and vinegar are very excellent to keep off the noxious qualities of the circumambient air.

III. *Of the Fire.*

FIRE is a pure element, and a part in the compoſition of all bodies. It may be called the baſis of life and motion; for whenever the animal heat ceaſes, the human body becomes cold, and is a lifeleſs lump. Hence, fire is the ſubſtance of all our motions and ſenſes; for, without it, we cannot ſee, hear, ſmell, taſte, nor feel any thing. It gives motion to the particles of the air, ſpring to their actions, and life and vigour to the human frame.

Some ſubſtances attract and retain larger proportions of heat than others; and one part of a body will attract and retain more of it than another: hence the red globules of the blood in the human frame, attract and retain a greater degree of heat than any other part.

Animal heat is produced, by the craſſamentum of the blood, which attracts and retains a part of the fire which is diſperſed through the terraqueous globe.

globe. This fire being thus converged to the blood, makes the fibres become elaſtic, diſtends the cells and cellular membranes by rarefaction, begins and continues an action and re-action between the vital heat and the fibres, and cauſes and ſupports thoſe motions on which life depends. But the nerves conduct the fire thus attracted to every part of the human frame, and from thence all our fluids become vehicles and conductors.

Hence the nervous ſyſtem muſt be firſt expanded by the heat, and afterwards the other veſſels: But whatever increaſes the craſſamentum of the blood, increaſes the vital heat. Hence animal food, and aromatics, will contribute towards the augmentation of this fire. Many diſeaſes have been called *ignis callidus*, hot fire; ſuch as burning fevers, inflammations, &c.

The common heat in the human body, raiſes the mercury in Fahrenheit's thermometer to 98 degrees, though ſome people are healthy when it only riſes to 83; and this heat continues the ſame, let the weather be hot or cold, unleſs ſome diſeaſe is produced, which raiſes or depreſſes the animal heat; but this heat rarely riſes higher than 110 degrees, or falls lower than 94.

Fire, though it is a pure element, yet it may be impregnated with particles which conſiſt of different qualities; or rather, the fumigations which ariſe from it, may be thus impregnated. Hence, when dog-wood or ivy is burnt in America, it will poiſon thoſe that ſtand in the ſmoke.

This element is of great ſervice in chemiſtry, cookery, and to keep us warm; and in a word,

it

it is a part of our bodies, without which we cannot exiſt one moment.

IV. *Of the Water.*

WATER, if not impregnated with other particles of matter, is a pure element. But I believe it is always impregnated in a greater or leſs degree, with particles of different kinds, imbibed from earths, minerals, ſalts, ſulphur, &c. and that even when it comes from the clouds, becauſe ſuch exhalations aſcend into the air, and combine with the watery fluid.

The fluidity of water ariſes from a certain degree of heat; for if the heat is two-thirds leſs than that of our blood, the water freezes; but if it is made about twice as hot, it boils, and cannot be made any hotter. But it will retain its qualities if it has been boiled or undergone the action of fermentation with other things, as that of brewing, &c.; but though it retains its qualities, it ought to be boiled before it is drank, to kill the animalculæ that may be therein.

This element is ſubject to elaſticity, expanſion, and compreſſion; for the heat will expand and make it elaſtic, and the cold will condenſe it into a ſmaller compaſs, and cauſe it to become fixed or frozen.

River water is eſteemed beſt for ſhort voyages, and ſpring water for thoſe that are long; becauſe the latter will not become putrid ſo ſoon as the former.—Soft pure water, however, or that which falls from the clouds at a conſiderable diſtance from

from great cities, is eſteemed the moſt healthy and the beſt for uſe. It is a great diluter and promoter of digeſtion.

Springs that proceed from a clean gravelly earth on high land, alſo afford good water; and water may be purified by diſtillation, which makes it the pureſt of all kinds, and it is ſuppoſed to be as good as the moſt celebrated mineral waters.

Let people be careful of drinking water, or any thing cold, when they are hot, leſt they die inſtantaneouſly.

Stagnant waters are very prejudicial: they abound with a ſalino-cauſtic and volatile effluvia which generates putrid and malignant diſeaſes. Theſe waters ought not to be drank either by man or beaſt.

Water is of great ſervice in navigation, chymiſtry, cookery, &c. and if that which is good is drank, quenches thirſt, cools fevers, promotes digeſtion, perſpiration, urine, &c. and like the other elements, it is a part of our bodies which we cannot live without.

CHAP. XXXVI.

How to reſtore People to Life that have been drowned —The AUTHOR'S *Obervations—How he ſuffered Shipwreck.*

IT is ſaid that ſome have been reſtored to life and health, that have laid under water ſix hours.

Let us obſerve, 1. That when the body is taken out of the water, it ſhould be put into a warm bed, a warm bath, or expoſed to the heat of the ſun. It ſhould not be rolled on the ground, nor on a barrel, nor taken up by the heels; but removed gently to the bed, bath, or warm ſun.

2. Let it be rubbed with coarſe cloths, until a glow is perceived in the ſkin.

3. Let the breath of a healthy ſtrong perſon be blown into the mouth of the patient, to diſtend the lungs.

4. Blow the ſmoke of tobacco in the mouth of the patient.

5. If he was plethoric, bleed him in the jugular vein, if he will not bleed at any other.

6. Tickle his throat with a feather, to excite vomiting.

7. Force nothing down his throat; but apply volatiles, ſuch as ſpirits of hartſhorn, or of ſal-ammoniac, to his noſe, and alſo ſnuff, to excite ſneezing.

8. Inject the fumes of tobacco into the inteſtines with a glyſter-pipe, fumigator, or a pair of bellows if nothing elſe can be had.

9. When

9. When he can ſwallow, give him a draught of warm water, with a table ſpoonful of muſtard mixed therein.

10. Apply bottles of warm water to his feet, joints and arm-pits, if he is not put into a warm bath; or it may be done after he is taken out; and warm bricks wrapped in cloths may be rubbed up and down his back, and over his body.

11. Wrap the body in a warm ſkin, juſt taken from a ſheep; alſo, cloths dipped in brandy, rum, or gin, and the cheſt, belly, back and arms rubbed with them, may be ſerviceable; but ſome rub the body with dry ſalt, ſo as not to wear off the ſkin.

Theſe frictions and other remedies ſhould be repeated as occaſion may require; it will perhaps be two hours before any ſigns of life may appear, and yet the patient may do well.

But a very ſmall quantity of water is ſwallowed by drowned perſons; for they do not attempt to breathe until they become inſenſible. Hence it is needleſs to roll them on barrels, or to ſet them on their heads.

I never had but one patient that was drowned; and after bleeding, rubbing, &c. when his life began to return, he ſighed, gaped, twitched, and went into ſuch violent convulſions that it took about four or five men to hold him. As ſoon as he could ſwallow, I gave him (as I had nothing elſe with me) a large doſe of Bates's anodyne balſam in ſome warm water, which allayed the ſpaſms, promoted a diaphoreſis, and he ſoon recovered.

Another man was drowned at the ſame time; but he was not taken out of the water till it was too late to attempt to bring him to life.

This accident happened by the overſetting of a ſmall canoe; and I have often been ſurpriſed that the practice of making ſuch dangerous things, and the venturing of people's lives in them, has not been ſuppreſſed. I was very near loſing my life by being overſet in one of them, in the river St. Lawrence, in the province of Quebec.—I once alſo ſuffered ſhipwreck, in conſequence of the ill conduct of our Captain, who got drunk, and let the veſſel run too near the rocks. At laſt he fell over-board; and the ſailors, being ſurpriſed, left the helm in order to ſave his life. I ran out of the cabin, and ſeeing nobody at the helm, ſprang to it myſelf. In a moment, however, the ſtern of the veſſel ſtruck, and threw off the rudder; and the wind being violent, ſhe ſoon ſtruck again, and bulged, the Captain by this time having got into the veſſel. We all jumped overboard, and effected our eſcape to land. A woman with a child about a year old was with us: I carried the child aſhore myſelf.——Drunken Captains, and drunken ſailors, are by no means fit to have the care of veſſels.

People that have been hanged, and others that have died ſuddenly, may ſometimes be reſtored to life in the ſame manner that thoſe are who have been drowned.

CHAP.

CHAP. XXXVII.

Of the HOT SPRINGS *at* BATH—*Opinions concerning the Cauſe of their Heat—An Account of the Qualities and Operations of their Waters, with that of other Medicinal Waters in Europe—Of Artificial Baths, and the Mineral and other Waters in America—Poetical Preſcriptions for Patients that may go to Saratoga, &c.*

THE moſt remarkable mineral ſprings that I have ſeen, are at the famous city of Bath, which is ſituated about 108 miles weſterly of London. This city is built of ſtone, and is the moſt beautiful place in the kingdom. Here the nobility and gentry flock in great multitudes, to drink the waters, and bathe themſelves. Here are alſo different baths that have different degrees of heat as from 94 to 116 degrees by Farenheit's mercurial thermometer. It is ſaid, that the hotteſt will boil an egg in four minutes: but there are ſuch conveniences, that the heat may be eaſily lowered to any degree for bathing, by the addition of cold water.

The time for bathing is from ſix to nine in the morning; afterwards the water is drawn off into the river Avon, and the baths are filled again with freſh water for uſe the next morning. The phyſicians order their patients to bathe in waters of ſuch degrees of heat as their circumſtances re-

quire. Theſe waters boil as they come out of the earth; and a great ſteam ariſes, which is ſaid to keep off infectious diſtempers.

Various have been the opinions of Philoſophers concerning the cauſe of this heat.—Some have imputed it to ſubterraneous fire in the bowels of the earth, whoſe fumes find vent by throwing out the waters. Others have ſuppoſed that the heat proceeds from the waters running over beds of minerals, or being impregnated with the vapours of pyrites, or fire-ſtones, which contain a large quantity of ſulphureous and ferruginous matter.—The latter is probably the true cauſe; for the mountains from whence the waters proceed, are full of ſuch ſtones; and if water is poured upon them, it will produce heat by fermentation. But hot ſprings in general are produced no doubt from various cauſes, as ſubterraneous veins of liquid fires, beds of ſulphur, and other minerals, which generate heat like the pyrites at Bath.

By analization it has been found, that a Wincheſter gallon of Bath water contained,

	dwts.	grains.
1. Of calcarious earth combined with a vitriolic acid, in the form of a ſelenite. - - - -	3	19 $\frac{1}{10}$
2. Of calcarious earth combined with an acidulous gas. - - -	0	22 $\frac{1}{10}$
3. Of marine ſalt of magneſia -	0	22 $\frac{1}{10}$
4. Of ſea ſalt. - - - -	1	14 $\frac{1}{10}$
5. Of iron combined with acidulous gas	0	0 $\frac{1}{10}$

6. Of

6. Of aſcidulous gas, twelve ounces by meaſure.
7. Of atmoſpheric air, two ounces.

From the combination of the ſulphureous gas, ſeat ſalt, ferruginous and other qualities, it is that theſe waters are ſo very uſeful in the cure of chronic and other diſtempers.

Bath waters are attenuating, cleanſing, and ſtrengthening. They are friendly to weak conſtitutions, and beneficial in gouty, ſcorbutic, and rheumatic complaints; for wandering pains, palſies, convulſions, contractions, bilious cholic, obſtructions of the liver and ſpleen, jaundice, hypocondriac and hyſteric diſorders, decayed appetite, leproſy, and all other cutaneous eruptions: they comfort the nerves, and warm the body.

They are hurtful in hæmorrhages, inflammations, and infractions of the lungs. When theſe waters are drank, high-ſeaſoned meats and ſauces, with ſpiritous liquors, muſt be avoided, becauſe they generate inflammatory diſorders. Proper evacuations muſt precede the uſe of theſe waters, and the patients muſt drink and bathe faſting: not more than two pints ought to be drank in a day.

There are three other hot ſprings in England: *viz.* one at Buxton, one at Briſtol, and another at Matlock—The firſt raiſes the *argentum vivum* in Farenheit's thermometer about 80 degrees; the ſecond, about 76; and the third, near 68.

Some impute the virtues of the mineral waters to a quantity of fixed air contained them.

Theſe waters ſhould be drank at the fountain, for their virtues will ſoon fly off through the niceſt ſealed cork. The Bath waters hold their heat longer than any other heated to the ſame degree.

The Buxton waters operate as an alterative, and increaſe the vital heat: They are eſteemed to be ſerviceable in the gout, rheumatiſm, dry aſthma, convulſions, indigeſtion, loſs of appetite, contractions of the tendons, and catamenial defections.——Buxton is in Derbyſhire, about 159 miles from from London.

Briſtol waters are impregnated with lime, and abound with a ſoft alkaline quality. They are a ſpecific in coughs, conſumptions, ſpitting of blood, dyſentary, diabetes, inflammations, ſcurvy, ulcerations, ſpaſms, and acrimonious humours.—Briſtol is 120 miles weſterly from London.

Matlock waters are ſlightly impregnated with ſelenites, or ſome other earthy ſalt; and have the ſame virtues as the waters at Briſtol.—Matlock is in Derbyſhire, 104 miles from London.

All mineral waters participate in a greater or leſs degree, of earthy, ſalineous, ſulphureous, and other matters over which they run in their ſubterraneous paſſages. Hence their virtues are various, according to the different qualities of the matter with which they are impregnated.

There is a ſpring near Wales in England, that throws matter out of it, which reſembles tar—ſuppoſed to be occaſioned by ſubterraneous fires, and the conſumption of coal-mines.

Beſides

Beſides the preceding ſprings in Great-Britain, there are, 1. Alkaline waters at Upminſter, Brentwood, Weal, Selter, and Tilbury; the latter is the ſtrongeſt. It is good in acidities, crudities, alvine fluxes, and other diſorders from a debility of the fibres. A quart may be drank in a day.

2. The bitter purging waters at Northaw, Brant, Alford, Colcheſter, Lambeth, and Dulwich. A patient may drink from one to three pounds in a day as a purge; but it muſt be taken in a leſs quantity as an alterative—a little brandy or aromatic tincture is recommended to prevent their griping. They may be mixed with milk, whey, wine, &c. and uſed as common drink in ſuch quantities as to keep the body lax.

3. Steel waters are thoſe of Pyrmont, Spa, Tunbridge, Hampſtead, Iſlington, Hartfell, &c. all of which are in England. The firſt and the third are eſteemed beſt for medical uſe. They have the virtues of iron and ſteel, which are alike. They open, corroborate, and aſtringe: Hence, they are good for weak, lax, pale, leucophlegmatic habits. They encreaſe the vital heat, raiſe the pulſe, ſtrengthen the ſtomach, and invigorate the whole ſyſtem. They promote deficient, and reſtrain redundant diſcharges. From one to three pints of this water may be drank in a day.

4. The principal hot waters in Europe, are, thoſe of Bath, Aix-la-Chapelle, in France, and Bourbon in Germany. Germany is ſaid to contain more mineral waters than all Europe beſides.

Some

Some of them are ſo hot, that the patients let the waters cool ten or twelve hours before they are uſed. The bath and medicinal waters at Embs, Wiſbaden, Schwalbach, Willdungen, and thoſe in many other places, are ſaid to perform wonders in the cure of internal and external diſeaſes. Thoſe of Dungen, are ſaid to intoxicate as much as wine; and for that reaſon they are incloſed, ſo that people cannot come at them without permiſſion, otherwiſe they might drink too freely.

The waters at Aix-la-Chapelle are ſtrongly impregnated with ſulphur: they are very nauſeous, and their purgative quality is ſo great that but few can bear it.

There are other remarkable ſprings in France; as,—1. One at Bareges, whoſe waters are eſteemed the beſt in that kingdom for the cure of diſeaſes—

2. One at Sultzbach, whoſe waters are good for the ſtone, palſy, and a weakneſs of the nervous ſyſtem—3. Several at Bagueus, whoſe waters are eſteemed beneficial in the cure of diſeaſes—4. At the Forges, in Normandy, are celebrated mineral waters—5. One at St. Amand, whoſe waters open obſtructions, and cure the gravel——6. One at Aigne, whoſe waters are ſo poiſonous, that they kills birds that drink of it inſtantaneouſly.

5. It is ſaid, that the water of the River of Thames, which runs through London, will burn like ſpirits after it has been at ſea about 18 or 20 months, and that ſome other waters will do the like; but how to account for this, I know not, unleſs it

abounds

abounds with an oil or ſpirit that riſes on the top, and becomes inflammable by the motion of the ſea in long voyages. Perhaps the conſtant friction may cauſe the water to imbibe ſomething from the caſk, that may make it inflammable.

6. Sea water has different degrees of ſaltneſs: The proportion is from $\frac{1}{35}$ to $\frac{1}{28}$ of the weight of the water. This water is the ſalteſt at the equinoctial, and freſheſt towards the polar regions: Hence 20lb. of water in the torrid zone, will yield 1lb. of ſalt; and 50lb. in the frigid zones, will yield the ſame quantity: and in the intermediate latitudes, the quantity increaſes and decreaſes in proportion as we advance towards, or go from the equator.

Sea-water is diſcutient, corroborant, and antiſceptic. It purges gently, promotes the ſecretions, warms and ſtrengthens the body, and is good in ſwellings, carious bones, and as a vermifuge. It prevents the falling off of the hair, after patients have been ill of fevers, if the head is bathed therewith.— It is alſo eſteemed beneficial in the bite of a mad dog, if the patient is plunged often in it: it is alſo good for thoſe that are melancholy, and affected with madneſs. But it is hurtful in inflammations.—The doſe is from half a pound, to one and an half, in the morning.

Beſides the natural, perhaps it may not be amiſs to ſay ſomething concerning the virtues of the artificial baths, which may be either cold or hot.— Theſe are performed at a bath, or in veſſels made for that purpoſe, ſuch as bathing-tubs, &c. which

ſhould

ſhould be made ſo large that the patients may ſit or ſtand in them, as their circumſtances may require.

Of theſe baths there are three kinds; as,

1. The *pediluvia*, or bath for the feet:

2. The *ſemicupium*, or half bath, which reaches no higher than the umbilical region.

3. *Balneum totum*, or total immerſion.

The water uſed for warm artificial bathing ſhould be of the ſofteſt kind; that of rain is the beſt; that of melted ſnow is the next for ſoftneſs, and that of a river the next, &c.; but where ſoft water cannot be had, that which is hard may be ſoftened with caſtile-ſoap, milk, wheat-bran, camomile flowers, marſh-mallows, or white lily-roots, as either of theſe will make it ſoft.

The *pediluvia callida*, or warm bathing of the feet, promotes the circulation of the fluids; makes a revulſion from the head and vital parts; raiſes the pulſe, and creates a temporary fever. It is of great ſervice in colds, ſpaſms, head-achs, recent, obſtructions, fixed and wandering pains, pleuriſies, peripneumonies, convulſions, cholic, hæmorrhoids, hypochondriac and hyſteric complaints, menſtrual obſtructions, gout, rheumatiſm, caridalgia, and an obſtructed perſpiration: it promotes a diaphoreſis, reſt, and ſleep; the water ſhould not be too warm, becauſe it will make the patient faint, weak and thirſty, and pains will be excited in his head. The feet and legs may be immerſed as high as the calves; and the patient ſhould drink a warm infu-

ſion

ſion of camomile-flowers, keep his feet in the water about half an hour, and then go into a warm bed.

The *pediluvia* is hurtful in inveterate obſtructions and ſchirrous tumours; and it is dangerous to drink any thing cold whilſt the feet are in, or ſoon after they come out of the water.

The *pediluvia frigida*, or cold bathing of the feet, raiſes pleaſing ſenſations in the mind, and aſſiſts cathartics and diuretics in their operation: Hence it is of great ſervice in the iliac paſſion, as it tends to produce thoſe evacuations which are neceſſary to eradicate the diſorder.—The going with one's feet wet and cold, will often occaſion a diarrhœa.

The *ſemicupium*, or warm bath, aſſiſts other remedies in the cure of grievous complaints; and ſo does a total immerſion, though it is beſt for the patient to ſit with his head above the water. In moſt diſorders, however, I prefer the *ſemicupium* and the *pediluvia* to that of a total immerſion.—Warm bathing is excellent in venereal complaints, and eſpecially when the taint has become univerſal. Patients afflicted with cancers, have found great relief from it.

Cold bathing is the moſt uſeful when a violent ſhock is required; but proper evacuations ought to precede the uſe of it. It contracts the ſolids, condenſes the fluids, and accelerates their circulation. It is beneficial when the body requires bracing. Sometimes it is of great ſervice in the rheumatiſm, palſy, melancholy, and madneſs, and for

for children who have the rickets; but none ought to make uſe of it, without the advice of a ſkilful phyſician.

The North American Indians make uſe of a vapour bath, by ſhutting themſelves up in a ſmall tight room, and by throwing hot ſtones into a pail of water. When they have thus ſweated for ſome time, they plunge themſelves into cold water, and go immediately into the vapour bath again. This mode of practice is very beneficial in the cure of recent diſtempers.

Both the warm and cold baths ought to be uſed upon an empty ſtomach: but when the fibres are rigid, and the *viſcera* unſound, cold bathing is improper.

But let us return to the *mineral waters*.—There are a number of ſuch ſprings in America, whoſe waters are impregnated with different qualities.

At Lancaſter, in the county of Worceſter, in the commonwealth of Maſſachuſetts, there is a ſpring whoſe waters are beneficial in rheumatic complaints, as I have found by my own experience and obſervation. The patient may drink half a pint two or three times in a day, and plunge himſelf once when his ſtomach is empty. He ſhould come out of the water immediately, and keep himſelf warm after the immerſion.

At Stafford, in Connecticut, there is a mineral ſpring whoſe waters are ſaid to be beneficial in ſcorbutic complaints, cutaneous eruptions, and other diſorders: And, at Guildford, in the ſame government

government, there is another ſpring, whoſe waters will evaporate, even when tightly corked in a bottle; but I know not their virtues.

In the eaſterly part of the county of Albany, in the State of New-York, there is a mineral-ſpring whoſe waters are much applauded in the cure of diſtempers. But the moſt remarkable ſprings in this State, are thoſe of Saratoga, which are eight or nine in number: They are ſituated in the margin of a marſh, and ſurrounded by rocks formed by the petrefaction of the waters. One of them is about five or ſix feet above the ſurface of the earth, and is in the of a pyramid. In the top of this rock there is a cylindrical aperture, about nine inches in diameter, through which the water iſſues, being always greatly agitated as if boiling in a pot, although it is very cold. The water runs over the top of the rock in the beginning of the ſummer, but at other ſeaſons it riſes not ſo high by twelve inches. The rocks that encompaſs the other ſprings, are of different forms; but the waters ſeem to boil, and they run continually.

It is ſuppoſed that all theſe ſpings proceed from one fountain, but ſeparate in different canals, whereby ſome have greater connections with metallic bodies than others.

They are impregnated, 1. With a foſſile acid—2. A ſaline ſubſtance—3. A chalybeate property—4. A calcareous earth—and, 5. With a prodigious quantity of air.

This

This air, ſtriving for vent, produces fermentation; and it is ſo penetrating, that it cannot be confined in a tight veſſel: Hence it muſt be drank at the ſpring, or it will loſe its virtue.

The particles of diſſolved earth ſubſide as theſe waters run off, and, combining with the ſalts and fixed air, concrete, and form the rocks about the ſprings.

By obſervation it has been found, 1. That if a young turkey is held within a few inches of the ſurface of the water, at the lower ſpring, it will be thrown into convulſions in leſs than half a minute.

2. That the holding of it in ſuch a ſituation one minute, will make it become motionleſs.

3. That it will throw a dog into convulſions in leſs than a minute.

4. That if a trout is thrown into a veſſel of this water, when juſt taken from the ſpring, it will go immediately into convulſions, and expire in a few minutes.

5. That if a lighted candle is held near the ſurface of this water, it will ſuddenly go out, and the fire in the wick will be extinguiſhed inſtantaneouſly.

6. That if a bottle filled with this water is cloſely corked, and afterwards ſhaken, the airy matter will expand, force out the cork, or ſplit the bottle.

7. That wheat-flour mixed with this water, and kneaded into dough, and then baked, makes light and ſpongy bread, without the addition of yeaſt or leaven.

8. That

8. That when the air is gone off by evaporation, the water loſes its tranſparency, and lets fall a calcareous ſediment.

9. That if a piece of the rock that environs the ſpring is put into the fire, it will calcine into quick-lime, which may be ſlacked with cold water. —Hence we may conclude, that the waters are impregnated with lime-ſtone, and that the gas is an aërial acid, which makes the water capable of diſſolving and conveying the ſtones above the ſurface of the earth.

Theſe waters are emetic, cathartic, and diuretic in general; but they have different effects in different conſtitutions. They have an agreeable taſte whilſt the patient is drinking, but ſoon after they produce one that is diſagreeable.

A gentleman of the faculty, who lived near theſe ſprings, informed me, that a patient may drink a gallon of the waters in a day, with ſafety; and that they are excellent in ſcrophulous, rheumatic, and other complaints.

In the upper part of Morris County, in the Jerſeys, there is a cold mineral ſpring, whoſe waters are uſed with ſucceſs in the cure of ſome diſeaſes.

On a ridge of hills in Hanover, in the ſame county, there are a number of wells; and although they are about forty miles from the ſea, they ebb and flow near ſix feet, twice every day, as regular as the ocean.

In the county of Cape May, there is a freſh ſpring that boils up through the bottom of a ſalt-water creek. The tide riſes about four feet above this ſpring; and if a bottle well corked is let down

through the ſalt-water into the ſpring, and the cork pulled out with a cord prepared for that purpoſe, the bottle may be drawn up full of fine freſh water. There are other ſprings of the like kind in different parts of the State.—In the county of Hunterdon in the Jerſeys, there is a noted mineral ſpring, whoſe waters are eſteemed excellent. They are of the chalybeate kind.—it is ſaid, that there is a river, called Mill-ſtone, in the Jerſeys, whoſe waters in ſome places emit an inflammable vapour, that will take fire, and burn for a ſhort time. This vapour is ſuppoſed to be produced by the diſſolution of vegetable ſubſtances in the river.

At Auguſta, in Virginia, there are two ſprings, one of which is called the warm ſpring, and the other the hot. The heat of the warm ſpring riſes to 96 degrees by Farenheit's mercurial thermometer. This water is impregnated with ſulphureous particles; it is very volatile, and eſteemed good in rheumatic complaints and other diſorders.—The hot ſpring is about ſix miles from the warm ſpring. It raiſes the mercury in the aforementioned thermometer to a fever heat, *viz.* 112 degrees. This water is eſteemed good in many complaints, and frequently relieves when the water of the other ſpring fails.

There are hot ſprings at Kamſchatka, which raiſe the mercury to about 200 degrees, which is within 12 degrees of the boiling point. Theſe ſprings are much uſed for medical purpoſes.

In Botetourt, there are ſweet ſprings, whoſe waters are cold. They have granted relief when other mineral waters have failed.

In

In the county of Berkeley, there are mineral ſprings which are much uſed; but their waters are ſcarcely warm, and not very powerful.

In the county of Louiſa, there are medicinal ſprings; but their waters are not much uſed.

In Richmond there is a ſpring of the chalybeate kind, and ſome others in various parts of the county.

There is a ſulphureous ſpring at Howard's creek of green briar, and another at Bonſborough on Kentucky.

At Great Kanhaway, ſeven miles above the mouth of Elk river, and ſixty-ſeven above that of the Kanhaway itſelf, is a hole in the earth, from which iſſues a bituminous vapour, with ſuch rapidity that it makes the ſand move about its orifice like the ſand in a boiling ſpring. This vapour will take fire if a torch or lighted candle is put within eighteen inches of the hole, and flame up in a column of eighteen inches in diameter, and four or five feet high. Sometimes it goes out in about one-third of an hour; at other times, it will burn three or four days. The denſity of the flame is like that of burning ſpirits, and the ſmell like that of burning pit-coal. Sometimes cold water is collected in the mouth of this hole, and is kept in ebullition by the force of the vapour which iſſues through it. If the vapour is fixed in that ſtate, the whole of the water is ſoon evaporated.—There is a ſimilar vapour on Sandy River.

There are five noted ſalt ſprings in Kentucky, whoſe waters are ſalter than that of the ocean. The people in that country have been ſupplied

with ſalt made from thoſe waters, for three dollars and one-third *per* buſhel.

There is a mineral ſpring in the county of Wilkes, in the State of Georgia, which iſſues out of a hollow tree about four or five feet above the ſurface of the earth. The inſide of the tree is lined with a coat of nitre about an inch thick; and the leaves above the ſpring are incruſted with a nitrous coat, which is as white as ſnow. This water is excellent in gouty and rheumatic complaints, and for ſcrophulous and ſcorbutic diſorders; alſo in conſumptions, and other maladies. The patient may drink from one to two quarts in a day.

A gentleman informed me, that he had ſeen a hot ſpring in the Weſt Indies, whoſe waters iſſued, boiling hot, out of a burning mountain; but he did not tell what their virtues are.

I ſhall conclude this chapter with the following preſcriptions for patients going to the medicinal waters at Saratoga; and perhaps they may be beneficial to thoſe who may be inclined to go to other cold ſprings.

1.

IF, Siſter Spleen, you want a *cure*,
At Saratog' a place procure;
With a warm lodging, and a bed,
Where you in peace may reſt your head.

2.

There eat and drink, diſcourſe and play,
And drive all anxious thoughts away;
And frequently, when you've a chance
To hear good muſic, up and dance.

3. Go

3.

Go in the morning to the rock,
And there let nature have a ſhock,
By plunging whilſt the air is cool,
Into the wholeſome wat'ry pool.

4.

But at the fountain, mind, and think
Before you plunge, to take a drink:
Bathe not too long—but ſoon come out,
Put on your cloaths, and walk about.

5.

And when you thus have took the air,
Unto your houſe again repair;
Drink coffee, chocolate, or tea,
Or ſuch things as beſt ſuiteth thee.

6.

Uſe gentle exerciſe—peruſe
For a ſhort time the lateſt news;
Remark the things that you may find,
Exceeding pleaſing to your mind:

7.

Not caring who it is that rules,
Providing no rebellious tools
Deprive the country of its peace,
And make your own therein decreaſe.

8.

Then if the weather's warm and fair,
Before you dine, walk in the air;

Or if you have a prudent guide,
Go to a coach, and take a ride.

9.

Or if a gentle horſe you chuſe,
To ride him oft do not refuſe;
Don't exerciſe beyond your pow'rs,
But eat and ſleep at proper hours.

10.

Go ſee your friends as you ride round,
Where peace, where mirth, and joy abound;
In good diſcourſe divert your mind
With thoſe who are polite and kind.

11.

In food that's nouriſhing and light,
No doubt you'll take the moſt delight;
And whilſt you on the ſtage remain,
From all intemp'rance pray refrain.

12.

High-ſeaſon'd food you'll not digeſt;
It will deprive you of your reſt:
In wines and ſauces don't exceed;
Exceſs therein diſtempers breed.

13.

Eat food, then, of the lighteſt kind,
And undiſturbed keep your mind:
Digeſtion's work is eaſieſt wrought,
By chearful chat, and little thought.

14. To

14.

To church on Sunday go you may,
To hear the word, to ſing and pray;
And when the exerciſe is o'er,
Return to where you lodg'd before.

15.

Refreſh yourſelf, and, when you pleaſe,
Lie on the bed, and take your eaſe:
If you be young, or if you're old,
Be careful that ye take no cold.

16.

At night before you go to bed,
If vapours do affect your head,
Go bathe your feet, it may be beſt
In a warm bath—'twill make you reſt.

17.

When men ſkill'd in the medic art
Their good advice to you impart,
Then ſee that ye do not neglect
To take the things which they direct.

18.

Go neatly dreſs'd, but not too gay;
Drive reſtleſs thoughts and cares away:
Purſue theſe rules—wait the event,
And with your ſtation be content.

19.

Then I doubt not but ſoon you'll find
Relief according to your mind;

That you'll get rid of all your pain,
Your health and ſtrength return again.

20.

I hope you will, with much delight,
Do ev'ry thing that's good and right;
That when you die, you *will be bleſs'd*
With *glory, honour, peace, and reſt.*

Compoſed by the *Author*, at Kentiſh-town,
Feb. 26, 1790.

CHAP.

CHAP. XXXVIII.

The Widow's Addreſs to the Gentlemen—The Author fights with a Swarm of Fleas, who obtain a Victory over him—How to keep a Houſe clear of thoſe diſagreeable Animals.

A LADY who had loſt her huſband, and had refuſed to marry again, requeſted that I would favour her with ſome of my Poetry. I therefore compoſed the following:

1.

YE *Gentlemen*, pray now attend
To one that's in diſtreſs:
To one who wants a loving friend,
In this world's wilderneſs.

2.

My huſband died ſome time ago;
His fortune was not ſmall:
I have been courted, but cry'd, *No!*
I'll *marry* not *at all.*

3.

But now, behold! I've *chang'd* my *mind*,
And *ſing* another *tone*;
Becauſe it is not *good*, I find,
For me to *live alone.*

4. A man

4.

A man that's very young, or old;
A gameſter, or a ſot;
A ſtingy fool, or fretting ſcold,
I know, will ſuit me not.

5.

I want a man replete with ſenſe,
Whoſe manners are refin'd;
Whoſe temper's ſweet as innocence,
And all his actions kind.

6.

With ſuch an one I'd live in peace,
Make him a prudent wife;
Until his time or mine ſhall ceaſe,
We'd live a happy life.

7.

Let ſuch a man upon the ſtage,
A viſit pay to me;
And if he likes me, I'll engage
That married we ſhall be.

8.

Remember that I've *chang'd* my *mind*,
And *ſing* another *tone*;
Becauſe it is not *good*, I find,
For me to *live alone*.

Jan. 19, 1790.

When I was in the city of Quebec, a gentleman invited me to pay him a viſit, which I accordingly did. Juſt after I had got to his houſe, his wife was violently ſeized with convulſions; and at his requeſt, I adminiſtered remedies which granted relief.

relief. I tarried with them near two days, and was very well entertained. At his requeſt, I viſited him again about two months after; but a ſwarm of fleas had taken poſſeſſion of the houſe, which prevented my getting to ſleep till near day. I dreamed I was making poetical lines on the ſubject, and therefore wrote the following;

ONE evening fair I took a walk,
To hear ſome genteel people talk;
Who in me had ſo much delight,
They made me tarry through the night,
As time roll'd off, we did converſe
On ſubjects I ſhall not rehearſe,
Until at length we laid our heads
To reſt upon the downy beds.
But, lo! an hungry ſwarm of fleas
Crawl'd on my legs, and on my knees;
Nay, ſome of them did ſoon ariſe
Moſt rapidly above my eyes:
So nimbly on me they did creep,
By no means cou'd I go to ſleep:
They crawl'd, they jump'd, and grew ſo bold,
That of my fleſh they did take hold;
Which put me into ſuch a rage,
That I in war did ſoon engage.
I knock'd them all both to and fro,
But from me far they wou'd not go.
I found my ſtrokes upon the bed
By no means ſtruck the creatures dead.
Though I drove them from place to place,
They boldly jump'd into my face,
And bit me from my very noſe
Down to the ends of all my toes;
Which conſtantly did make me ſtart,
Like one prick'd with a piercing dart.
Whilſt through the dark and ſilent night,
I was oblig'd to lie and fight;

I kick'd,

I kick'd, I ſcratch'd, I rolled round,
And often on my foes did pound.
My labour prov'd ſo much in vain,
A vict'ry I could not obtain:
When it was day, I had to yield,
And wholly quit the irkſome field.
Though much fatigu'd, I look'd, and found
My fleſh moſt ſorely they did wound;
On me extended very wide,
Their venom was on ev'ry ſide.
When I was up, the Lady ſaid,
The fleas bit you, I am afraid!
They are ſo thick, I'm almoſt craz'd,
And honeſtly like one amaz'd.
She ſaid, the lads, to keep from harm,
Had lodg'd that night within the barn.
By what I heard, I truly found
The fleas from them had took the ground.
Is it not ſtrange, a neſt of fleas
Shou'd do ſuch mighty things as theſe!
Make men of might in battle yield,
And wholly take from them the field!
Now, to the world, I will point out
A method that, without all doubt,
Will make our foes ſo much decreaſe,
That we may live and ſleep in peace;
I therefore will proceed to ſhew
How we may kill this dreadful crew:
With boiling water ſcald the floors;
Keep clean the ground around the doors;
And from the houſe the cats and dogs,
The goats and cattle, ſheep and hogs:
Then the *tormenting jaws* of *fleas*,
Will not *prevent* our *ſleep* and *eaſe*.

Compoſed at Quebec, in 1788.

Bed-bugs

Bed-bugs are another diſagreeable vermin, which I cannot endure. They are very numerous and troubleſome in ſome old houſes in America, that are chiefly made of oak. Some ſay, that they will not live in a bed-ſtead that has been painted with verdigreaſe, and that the ſpirits or oil of turpentine will keep them off. And ſome uſe the *ung. ceruel.* for the ſame purpoſe. Cold water, and ſalt and water, are alſo uſed to kill bugs.

Lice and crabs may be deſtroyed as follows:—Go to the apothecary, and buy Aq. roſar. 4 oz. —Merc. croſ. ſublimat. 1 ſcr. m. f. lotio.——Or, ung. ſimp. 2 oz.—Merc. præcip. alb. 1 ſcr. *miſce.* ——But ſome apply the ung. ceruel. mit.—Let a phyſician, or an apothecary, tell how much you ought to apply at one time.

It has been ſaid that boiling water will not kill lice; and that if a louſy garment is wet, and expoſed to the froſt, the lice will die.

The ſtings and bites of hornets, waſps, bees, and bugs, may be cured with oil, honey, and vinegar, applied *pro re nata.*

In ſome places, the flies, gnats, and moſchetoes are very troubleſome. Some drive them out of their houſes by fumigations, and exploſions of gunpowder. Emollient fomentations, and cataplaſms with oil mixed with theriaca, are good in all bites and ſtings. Milk and oil, both internally and externally, are excellent remedies in all poiſons that produce inflammations.

CHAP.

CHAP. XXXIX.

Of a Battle between a Toad and a Spider—Of the Death of a Man bit by a Spider—Of a Patient who loſt his Senſes by ſwallowing a Spider—Of the Death of a Family by the Poiſon of a Lizard—Of Poiſon Fiſh—And how Two Women were burnt to Death in conſequence of their drinking to Exceſs.

A TOAD was ſeen to fight with a ſpider in Rhode-Iſland; and when the former was bit, it hopped to a plantain leaf, bit off a piece, and then engaged with the ſpider again. After this had been repeated ſundry times, a ſpectator pulled up the plantain, and put it out of the way. The toad, on being bit again, jumped to where the plantain had ſtood; and as it was not to be found, ſhe hopped round ſeveral times, turned over on her back, ſwelled up, and died immediately.—This is an evident demonſtration that the juice of plantain is an antidote againſt the bites of thoſe venomous inſects.

We have different kinds of ſpiders in America, all of which have a greater or leſs degree of poiſon, though ſome people have been otherwiſe minded. The largeſt ſort, which are of a greeniſh colour, are the moſt venomous.

At

At the high lands on Hudſon's river, in the State of New-York, in the year 1780, a Mr. Thomas Nelſon, who belonged to the Continental Army, was bit by a green ſpider, in a vein juſt above his fore-finger. The part firſt itched, then ſmarted, ached, and ſwelled to his arm-pit; from thence the ſwelling ran to the middle of his breaſt, and, in about twelve hours from the time he was bit, he expired. This I received from a Captain Hubbal, who commanded the company that Nelſon belonged to.

A learned phyſician in the Maſſachuſetts, with whom I was acquainted, viſited a patient who was violently ſeized with a delirium. An emetic was exhibited—a large ſpider was vomited up, and the patient's ſenſes were ſoon reſtored. He recollected, that as he was drinking ſome water in the dark, on the preceding evening, he ſwallowed ſomething, which he ſuppoſed to be the ſpider.

A cook-maid in Virginia, accidentally boiled a lizard in the head of a cabbage: the poiſon proved mortal, for it killed her, and all the reſt of the family.

Fiſh that live upon beds of copper-mines, are poiſonous. The way to know whether they are ſo or not, is to boil a ſilver ſpoon with them; and if it comes out bright, the fiſh is not poiſon; but if it is coloured, they are by no means fit to be eaten. In the year 1789, a man died at New-York, by eating a piece of a dolphin, ſaid to be impregnated with ſuch *virus*.

A woman who lived in the practice of drinking a quart or more of brandy in a day at New-York, became

became ſo impregnated with that inflammable ſpirit, that ſhe took fire when ſhe was alone in the night, and was found the next morning almoſt conſumed. It was ſuppoſed that the fire was communicated from a candle to her breath, and from thence conveyed to her internal parts. The room was covered with a blackiſh ſmut; but the floor on which ſhe lay was not burnt. It was ſuggeſted, that the fat that ran from her body prevented the floor from taking fire; but perhaps the tightneſs of the room, and the ſeparation of the watery particles from the inflammable, might be the cauſe thereof.

Another woman, who lived on Long-Iſland, near New-York, followed the practice of drinking rum to exceſs, till ſhe took fire by the flame of a candle, in the preſence of her friends. They ſoon extinguiſhed the flame; but her inſides were ſo much burnt, that ſhe died in a ſhort time. This account was communicated to me by the phyſician who was called in when the accident happened.

CHAP.

CHAP. XL.

Of the Rattle-ſnakes, Black Snakes, Vipers, and Mad Dogs—How to cure their Bites.

I. *Of the* RATTLE-SNAKE.

THESE reptiles have been very numerous in ſome parts of America; but their number has greatly decreaſed of late, by reaſon of the rapid increaſe of the Engliſh and other ſettlements. Their bites are very poiſonous, and ſometimes prove mortal; but their fleſh is ſuppoſed to be good in conſumptions, though I have not ſeen any good effects from its uſe. The oil is the moſt penetrating and relaxing of all animal oils, and is eſteemed excellent for quinſeys, ſtiff joints, corns, &c.

The bite of a rattle-ſnake may be cured by the juice of the roots and branches of plantain and horehound, forced down the patient's throat, if it cannot be taken otherwiſe. A large ſpoonful is a doſe. If one doſe does not relieve the patient, in an hour, give another, and repeat it as occaſion may require. If the herbs are dry, moiſten them with a little water before they are bruiſed in a mortar: a leaf of tobacco, ſteeped in rum, may be applied to the wound.

Seneka, or rattle-ſnake root, is ſaid to be a ſpecific againſt the poiſon of theſe reptiles. The powder of the root, or the freſh root, may be applied as a cataplaſm to the wound; and the patient may take from a ſcruple to a drachm of the powder in ſubſtance; or three ounces of the root may be boiled in water enough to make a pint of decoction, of which the doſe is from two to four ſpoonfuls, three or four times in a day.

A decoction and poultice of blood-root is alſo beneficial in the bites of theſe ſerpents; but the plantain and horehound is ſuppoſed to be the beſt remedy.

A Captain Haſtings informed me, that he provoked a rattle-ſnake to bite a piece of elm-bark in three different places. From the firſt place that was bitten, the poiſon extended itſelf about 18 inches each way, and was of a deep green colour: from the ſecond place, it ran about 9 inches; and in the third, he could ſcarcely diſcern any colour at all. Hence he concluded, that the poiſon of the ſerpent was almoſt entirely exhauſted by the two firſt bites.

II. *Of the* Black Snake.

BESIDES the rattle-ſnake, there is one of a black kind in America; but I have not heard of their biting any perſon. But they are very dangerous; for ſometimes they get round people's necks, and ſometimes round their waiſts, and draw themſelves tighter and tighter 'till the people expire. It has been ſaid, that an Indian woman, who

who had killed ſome young ſnakes of this kind, loſt her life in that manner by an old one.

A very remarkable inſtance happened in the county of Worceſter, in the commonwealth of Maſſachuſetts, ſince the commencement of the late war.—A boy dreamed ſeveral nights running, that he was killed as he was going after the cows, at a certain place, by a black ſnake; and told his maſter and miſtreſs of his dreams, and that he was afraid to go after the cattle. At laſt he grew ſo timorous, that he actually refuſed to go at all unleſs he could have company; but his maſter flogged him, and ſent him off. The next morning the poor boy was found dead at the place he had mentioned, with a large black ſnake round his waiſt.

Theſe ſerpents will climb trees, to get birds eggs; and both they and the rattle-ſnake often charm birds into their mouths.

When a black ſnake gets round a perſon, 'tis beſt to cut it in two. Hence the neceſſity of travelling with a pen-knife; for whether they are round a perſon's neck or waiſt, they draw themſelves tighter and tighter as he fetches his breath, and at laſt put an end to life.

Cure for the BITE *of a* VIPER.

WARM common ſallad-oil, and rub it well into the part that has been bitten. This is ſaid to complete the cure, if repeated *pro re nata*.

Names of the different Snakes or Reptiles in the United States of America.

1 The rattle-ſnake
2 Small ditto
3 Yellow ditto
4 Copper-bellied ſnake
5 Bluiſh green ditto
6 Black ditto
7 Ribbon ditto
8 Spotted ribbon ditto
9 Chain ditto
10 Joint ditto
11 Green ſpotted ditto
12 Coach-whip ditto
13 Corn ditto
14 Hog-noſe ditto
15 Houſe ditto
16 Green rattle-ſnake
17 Wampam ditto
18 Glaſs ditto
19 Bead ditto
20 Striped or garter ditto
21 Water ditto
22 Hiſſing ditto
23 Thorn-tailed ditto
24 Speckled ditto
25 Ring ditto
26 Two-headed ditto
27 Wallor-houſe adder
28 Water viper
29 Black ditto
30 Brown ditto.

The toad is alſo called a reptile.

The thorn-tail ſnake is of a middling ſize, and very venemous. It has a thorn in its tail, with which it ſometimes ſtings thoſe that come near it.

The ſkin of the joint-ſnake is as ſmooth as glaſs, and ſo hard that it will break to pieces like the tube of a pipe. It has ſo few joints, and is ſo ſtiff, that it cannot eaſily bend itſelf into the form of a hoop.

Two-headed ſnakes are very ſcarce, and perhaps of a monſtrous kind, though it has not as yet been determined whether they are ſo or not.

There are more ſnakes in the ſouthern than in the northern governments, for they love hot climates beſt.

The remedies I have preſcribed, are eſteemed good for the bites of all ſuch kinds of reptiles.

Of

Of the ſigns of Madneſs in a Dog.

THE ſigns of madneſs in a dog, are,

1. A dull, heavy look;
2. His trying to hide himſelf;
3. His ſeldom or ever barking;
4. His being angry with, and ſnarling at ſtrangers;
5. His fawning and leaping at his owner;
6. His refuſing to eat or drink;
7. His drooping, hanging down his head, ears, and tail;
8. His often lying down as if going to ſleep—This is called the firſt ſtage of madneſs.
9. His breathing quick and heavy;
10. His running out his tongue, ſlavering and frothing at the mouth;
11. His appearing to be half-aſleep;
12. His flying at the by-ſtanders;
13. His running forward in a curved line;
14. His not knowing his maſter;
15. His eyes watering as they grow thick and dim;
16. His tongue being of a leaden colour;
17. His growing faint, weak, falling down, riſing up and attempting to fly at ſomething—This is the laſt ſtage of madneſs, and the dog commonly dies in leſs than 30 hours.
18. The higher the madneſs is, the more dangerous are the bites.
19. When a dog is mad, all other dogs, upon ſmelling him, run off with horror.

Symptoms conſequent on the Bite of a Mad Dog.

The ſymptoms conſequent upon the bite of a mad dog, are,

1. A pain in the part bitten;
2. The gradual approach of wandering pains;
3. An uneaſineſs and heavineſs, with diſturbed ſleep and frightful dreams;
4. A toſſing of the body, ſudden ſtartings, ſpaſms, &c.
5. A ſighing, ſolitude, and anxiety;
6. Shooting pains from the wound to the throat;
7. A ſtraitneſs, and ſenſation of choaking;
8. A horror and dread at the ſight of water and other liquors;
9. A trembling, and loſs of appetite;
10. A ſtarting back when any fluid touches their lips, attended with great agony and fury;
11. A nauſea, and vomiting of bilious matter;
12. A continual watching, dryneſs and roughneſs of the tongue, with a high fever;
13. A thirſtineſs and hoarſeneſs, with a lolling of the tongue out of the mouth;
14. An attempting to ſpit at the by-ſtanders, and to bite thoſe they can come at;
15. A raging and foaming at the mouth;
16. An averſion to the ſight of a dog, and to a perſon dreſſed in ſcarlet;
17. A barking like a dog, ſinking of the pulſe, failure of breathing, followed by cold clammy ſweats, convulſions, and death.

A *Hydro-*

A *Hydrophobia* is a nervous diſorder, attended with inflammatory ſymptoms. There are two kinds, *viz.* a *hydrophobia rabioſa*, or a deſire of biting; and a *hydrophobia ſimplex*, or no deſire of biting. Some patients grow dumb, others rave with madneſs; and ſometimes the madneſs is periodical.

The ſmalleſt quantity of the *ſaliva* of a mad dog, either freſh or dry, may produce this diſtemper. The poiſon generally operates in three or four weeks; but ſometimes it lies dormant many months. The infection is communicated to the human race by the *ſaliva* only; but dogs have received it by going into kennels where mad dogs have been before.

When a patient is bitten by a mad dog, let the wound be immediately dilated, or entirely cut out; and the poiſon extracted by a cupping-glaſs, with ſcarifications, or by drawing cataplaſms: perhaps a poultice of onions, often applied, might be of great utility, and alſo epiſpaſtics.

Some cauterize the wound, after it is ſcarified: —but I cannot ſee wherein that can be beneficial; for the parts being ſeared, muſt become callous in ſome degree, and obſtruct a diſcharge of the *virus*.

The frequent waſhing the wound with ſalt-water and vinegar, and keeping it open by eſcharotics, has been recommended; but, do not theſe remedies contract the parts, and ſhut in the poiſon?

It is ſaid, that the Americans have poured cold freſh water from a tea-kettle upon the part bit

by a mad dog, and continued it a long time, and that it has been ſerviceable in carrying off the poiſon: but it is my opinion, that warm water would do better; becauſe the cold condenſes, and the heat relaxes the parts, and may open a way for the *virus* to make its eſcape.

Hence may we not conclude, that the dilating of the wound, waſhing frequently in warm water, the application of a cupping-glaſs with ſcarifications, and of attractive fomentations and cataplaſms, muſt be of greater utility than thoſe things that cicatrize, contract, and condenſe the parts, and hinder the poiſon from eſcaping at the place where it was imbibed?

The frequent uſe of the cold bath is eſteemed advantageous in the canine madneſs.

When the poiſon has extended itſelf through the whole maſs of the fluids, the cure muſt be attempted by ſuch things as will prevent or deſtroy the nervous or ſpaſmodic irritation, or, by a ſpecific property, deſtroy the acrimony that generates the diſorder.

Hence, if there is an inflammation, or a *plethora*, bleed, and give *Gm. Opii.* gr. j. *vel.* gr. jſs. every three hours; and alſo the following bolus, once in ſix or eight hours:—*Moſch. Optim.* gr. xvj.—*Cinnab. fact. lævigat.* ʒſs.—*Pil. Sapon.* gr. viij.—*Gum. Camph.* gr. vij. *Balſ. Peruv.* q. ſ. f. *ut bolus.*

The next morning take the following purge:—*Infuſ. Sennæ,* ʒiij.—*Tinct. Sennæ,* ʒſs.—*Sal. Cath. Glaub.* ʒiij.—*Syr. Solutiv.* ʒij. mix.*

* ʒ Signifies a drachm.

The

The ſame evening, or the next day, put the patient into the cold bath; rub him dry, and put him to bed; and promote a diaphoreſis, by repeating the opiates and muſk-bolus, and by half a pound of the infuſion of Valerian and Saſſafras, with as much white-wine whey as he can drink.

Let theſe remedies, with the bathing, be repeated for ſeven nights, if the dog was raving mad; and for three or four nights at the next full and change of the moon.

If the patient is ſeized with a *hydrophobia*, apply ſponges dipped in hot vinegar, conſtantly to his noſe and mouth; and a piece of thin flannel moiſtened in the following liniment, to his throat, three or four times in a day:

Linimentum Thebaicum.

R. *Tinct. Theb.* ʒiij.—*Gum. Camph.* ʒj. m.

Mercurials are eſteemed excellent in the bite of a mad dog, both before and after a *hydrophobia*. Some rub the *Ung. Cærul. Fort.* into the wound, and raiſe a ſalivation by mercurial unction externally applied. A ptyaliſm ſhould be continued three or four weeks. Calomel in ſmall doſes is beneficial; and the following emetic is called a ſpecific, and will help in bringing forward a ſalivation:

R. *Merc. Emet. Flav.*—*Gum. Camph.* āā gr. iij. *miſce bene*; and add *Conſ. Cynoſb.* q. ſ. ut f. bolus.

A ſalivation has ſometimes worked a radical cure; and although the cold bath has been highly extolled, it is my opinion, that a warm one of freſh water would prove more effectual in expelling the *virus*.

Every

Every dog, on the leaſt appearance of madneſs, ought to be immediately killed and buried. Is it not ſtrange that ſuch great numbers of thoſe animals are ſuffered to live, and eſpecially in capital towns and cities, when they ſo frequently run mad, and their bites are ſo extremely dangerous? Would it not be better for the community, if nine-tenths of them were killed?

I have lately read a melancholy account of a man who loſt his life a few months ago in the State of New-York, by ſkinning a cow that died by the bite of a mad dog. The poiſon was communicated to him that way, and he died of a *hydrophobia*.

Wolves, foxes, cats, cocks, hogs, cattle, &c. &c. alſo run mad, and their bites are dangerous. A gentleman died not long ago by being bit by a cat, in or near London; and a young lady was in the agonies of death at Briſtol, in England, when I was in that city, in Jan. 1790, who had been bit by a cat: It was ſuppoſed that the cat was bit by a mad dog before it run mad.

People that have been bit by a mad dog, will bark like a dog; and thoſe bit by a cat, will mew like one of thoſe animals.

Let thoſe who may be bit by any mad animal, ſend immediately for a ſkilful phyſician.

Thus have I mentioned the common methods of cure, with my own opinion upon the ſubject. It is hoped that ſome better antidotes will be diſcovered in time, than thoſe hitherto found out.

CHAP.

CHAP. XLI.

Of the Birds, Beaſts, Fiſhes, Inſects, and Amphibious Animals in North-America.

HAVING mentioned the names of the North-American reptiles in the preceding chapter; perhaps it may not be amiſs to mention the names of the birds, beaſts, fiſhes, inſects, and amphibious animals in that part of the world.

I ſhall therefore proceed to mention, 1. The birds; 2. The beaſts; 3. The fiſhes; 4. The Inſects; and, 5. The amphibious animals.

I. *Of the* BIRDS.

1 THE Black-bird
2 Razor-bellied ditto
3 Baltimore
4 Blue
5 Buzzard
6 Blue jay
7 Blue groſbeak
8 Brown bittern
9 Creſted bittern
10 Small bittern
11 Booby
12 Great booby
13 Blue peter
14 Bull-finch
15 Bald-coot bird
16 Cut-water
17 White curlew
18 Cat-bird
19 Cuckow
20 Crow
21 Cowpen-bird
22 Chattering plover, or kildee
23 Crane, or blue heron
24 Yellow-breaſted chat
25 Cormorant
26 Hooping crane
27 Pine-creeper

28 Yellow

28 Yellow-throated creeper
29 Dove
30 Ground dove
31 Duck
32 Ilathera duck
33 Round-creſted duck
34 Sheldrach or canvaſs duck
35 Buffel's-head duck
36 Spoonbill duck
37 Summer duck
38 Black-headed duck
39 Blue-winged ſhoveller
40 Little brown duck
41 Sprigtail
42 White-faced teal
43 Blue-winged teal
44 Pied-bill dobchick
45 Eagle
46 Bald eagle
47 Flamingo
48 Fieldfare of Calolia, or robin
49 Purple finch
50 Bahama finch
51 American gold-finch
52 Creſted fly-catcher
53 Black-cap ditto
54 Little brown ditto
55 Red-eyed ditto
56 Finch-creeper
57 Storm-finch
58 Goat-ſucker of Carolina
59 Gull
60 Laughing gull
61 The gooſe
62 Canada gooſe
63 Hawk
64 Fiſhing Hawk
65 Pigeon-hawk
66 Night-hawk
67 Swallow-tailed hawk
68 Hang-bird
69 Heron
70 Little white heron
71 Heath-cock
72 Humming bird
73 Purple jack-daw or crow black-bird
74 King-bird
75 King-fiſher
76 Loon
77 Lark
78 Large lark
79 Blue linnet
80 Mock bird
81 Mow bird
82 Purple martin
83 Nightingale
84 Noddy
85 The Nuthatch
86 Oyſter-catcher
87 Owl
88 Screech-owl
89 American partridge or quail
90 Pheaſant or mountain partridge
91 Water-pheaſant
92 Pelican
93 Water ditto
94 Pigeon of paſſage
95 White-crowned pigeon
96 Parrot of Paradiſe
97 Paroquet of Carolina.
98 Raven
99 Rice-bird
100 Red bird
101 Summer ditto
102 Swan
103 Soree
104 Snipe

105 Red

105 Red ſtart
106 Red-winged ſtarling
107 Swallow
108 Chimney-ſwallow
109 Snow-bird
110 Little ſparrow
111 Bahama ditto
112 Stork
113 Turkey
114 Wild turkey
115 Tyrant
116 Creſted titmouſe
117 Yellow ditto
118 Bahama do.
119 Hooded do.
120 Yellow rump
121 Towhe bird
122 Red thruſh
123 Fox-coloured thruſh
124 Little thruſh
125 Tropic bird
126 Turtle of Carolina
127 Water-wag-tail
128 Water-hen
129 Water witch
130 Wakon bird
131 Whetſaw
132 Large white-bellied woodpecker
133 Large red-creſted ditto
134 Gold-winged ditto
135 Red-bellied do.
136 Hairy do.
137 Red-headed do.
138 Yellow-bellied do.
139 Smalleſt ſpotted do.
140 Wren

Unto this catalogue ſhould be added the winter phebe, and the ſummer phebe; alſo the red mavis, whip-poor-will, and robin-red-breaſt.

The Americans raiſe great numbers of geeſe, turkies, peacocks, doves, ducks, dunghill fowls, Guinea hens, &c. ſo that poultry is very plenty and cheap. In ſome places, numerous flocks of pigeons come from diſtant countries, and are caught by the people in nets.

The ſwan is the biggeſt of all web-footed water-fowls.

The pelican is alſo a water-fowl. It lives at the River Miſſiſſippi. Its pouch, or crop, will hold eight quarts. They are about five feet from the end of their bills to that of their tails.

The humming bird is the ſmalleſt, and the lark aſcends the higheſt of all the winged tribe.

II. *Of the* Beasts.

1 Mammoth
2 Buffalo
3 Panther
4 Carcajou
5 Wild cat
6 Bear
7 Elk
8 White bear
9 Wolf
10 Mooſe deer
11 Stag
12 Carrabou
13 Fallow deer
14 Greenland deer
15 Rabbit
16 Bahama coney
17 Monax
18 Grey ſquirrel
19 Grey fox ſquirrel
20 Black ſquirrel
21 Red ditto
22 Ground ditto
23 Flying do.
24 Striped do.
25 Black fox
26 Red do.
27 Grey do.
28 Racoon
29 Wood-chuck
30 Skunk
31 Opoſſum
32 Polecat
33 Weaſel
34 Martin
35 Minx
36 Beaver
37 Muſquaſh
38 Otter
39 Fiſher
40 Water-rat
41 Muſk-rat
42 Houſe-mouſe
43 Field-mouſe
44 Moles
45 Quick-hatch
46 Morſe
47 Porcupine
48 Seal.

The mammoth is not to be found in the civilized parts of America. It is ſuppoſed he lives North of the Great Lakes. They are very large according to their ſkeletons, which have been found on the Ohio, and in New Jerſey.

The opoſſum is about the bigneſs of a common cat.

The buffalo is larger than an ox.

The tyger is a very fierce ravenous animal, and will ſpare neither man nor beaſt; but it is not apt

to fly at mankind if it can get the fleſh of other animals to live upon: its ſhape is ſomething like that of a lioneſs.

The wild cat is much like a common cat, but a great deal larger: they are very fierce, but ſeldom attack people.

The elk reſembles a deer, but is much larger than a horſe: they have very large horns, which they ſhed every year, in February; and by Auguſt, their horns almoſt come to their full growth.

The mooſe is about the bigneſs of a deer: they have large horns, which they ſhed annually.

The carrabou reſembles a mooſe, but is not ſo large.

The carcajou is of a cat kind: I ſuppoſe they are what we call catemounts in New-England. They kill elks, carrabous, and other deer, by lying in ambuſh on the limbs of trees, or in ſome other place; and when an elk or deer draws near, he jumps upon its neck, ſeizes the jugular vein, and ſoon kills his prey; but if the elk can jump immediately into the water, he may ſave his life, for the carcajou will loſe his prey rather than venture into that element.

The ſkunk, called by the French, *Enfant du Diable*, the child of the devil, is ſomething leſs than a polecat. When this animal is purſued, it ſends forth, in its defence, a ſmall ſtream of water from a receptacle near its bladder, which has ſuch a ſubtile, powerful and penetrating ſmell, that it will taint the air with a horrible ſtench, to a ſurprizing diſtance. Their fat is an emollient,

and

and very beneficial for ſtiff joints, and for gouty and rheumatic complaints.

The porcupine, or hedge-hog, is about the bigneſs of a middling dog. It is covered with quills near four inches long. They ſhoot their quills at their enemy; and if they enter the fleſh at all, they will work through, unleſs extracted by inciſion; for they cannot be extracted without, any more than a fiſh-hook.

The wood-chuck is about fifteen inches in length; it digs holes ſeveral feet into the ground, in which it burrows.

The racoon is about the bigneſs of a fox, only it is not ſo thick; they climb trees. The firſt I ever ſaw, I ſhot from the top of a high tree, when I was young; and could not tell what it was, till an old hunter came along, and told me what I had killed.

The bears ſometimes do much damage, by killing ſheep, deſtroying Indian corn, &c. And the wolves are great ſheep-killers; and ſometimes when they have been very hungry, they have killed people, and eat their fleſh: And the bears have alſo killed people, when they have come near their young cubs; but they do not often meddle with the human race, unleſs they have been wounded, or are afraid of loſing their young.—But the catemounts are the moſt to be dreaded of all the wild beaſts in America; for they are ſo very fierce, that it is dangerous coming near them.

The Americans raiſe great numbers of neat cattle, horſes, ſheep, ſwine, dogs and cats.

III. *Of*

III. *Of the* FISHES.

IN the rivers, brooks, ponds, and lakes, we have divers kinds of Fiſhes, as well as in the ſalt-waters adjoining the American Continent.

The American Fiſhes are,

1 The whale
2 Shark
3 Dolphin
4 Flying fiſh
5 Sword fiſh
6 Sturgeon
7 Haddock
8 Salmon
9 Salmon-trout
10 Common trout
11 Flounders
12 Cod-fiſh
13 Pike
14 Mackarel
15 Herring
16 Sprats
17 Smelts
18 Chivens
19 Froſt fiſh
20 Eels
21 Pouts
22 Breams
23 Shiners
24 Shad
25 Sheep's-head
26 Lobſters
27 Clams
28 Oyſters
29 Succers
30 Black fiſh
31 Porpoiſe
32 Sea-tortoiſe
33 River ditto.

The Sharks are very large, and ſo very greedy that they will kill and ſwallow a man inſtantaneouſly.

IV. *Of* INSECTS.

1 The glow-worm
2 Earth-worm
3 Leg or Guinea worm
4 Naked ſnail
5 Shell-ſnail
6 Tobacco-worm
7 Wood ditto
8 Silk do.
9 Wall-louſe or bug
10 Sow-bug
11 Horn-bug
12 Bed-bug
13 Flea
14 Gnat
15 Sheep-tick
16 Wood-louſe

17 Forty legs, or centipes
18 Caterpillar
19 Adder bolt
20 Cicadia, or locuſt
21 Man-gazer
22 Cock-roche
23 Cricket
24 Beetle
25 Fire-flying bug
26 Butterfly
27 Moth
28 Ant
29 Bee
30 Humble-bee
31 Black waſp
32 Yellow waſp
33 Hornet
34 Fly
35 Sand-fly
36 Black fly
37 Horſe-fly
38 Muſketo
39 Spider
40 Millar
41 Head-lice
42 Body-lice
43 Cattles lice
44 Hogs lice
45 Heſſian fly
46 Dores
47 Maggots
48 Crabs
49 Ear-wigs.

V. *Of* Amphibious Animals.

THESE go ſometimes on the land, and ſometimes in the water.—The Alligators are often five yards long; they kill hogs, dogs, fiſh, &c. and live in South-Carolina. When winter draws near, they fill their bellies with pine-wood, and crawl into their dens in the bank of ſome creek or pond, and lie all winter without any other ſuſtenance.

The guana, green lizard, blue-tailed lizard, and lion lizard, are found in the Southern States.

The beaver is an amphibious animal, about four or five feet in length, and fifteen inches in breadth. They cut down trees, make dams acroſs ſmall rivers and large brooks, and build cabins to live in.

The muſquaſh is alſo amphibious, and ſo are frogs, otters, and minxes.

CHAP.

CHAP. XLII.

Of Burns, Scalds, and Freezes—Of the Growth of Hair, Baldneſs, &c.

I. *Of Burns and Scalds.*

DRAW the fire out immediately by the application of a poultice of raw onions beat fine in a mortar. Boiled or roaſted onions may anſwer; but they are not ſo drawing as when raw. Renew the cataplaſm twice or thrice in a day; bleed the patient, if he is plethoric; and keep the body open with gentle cathartics:—this will prevent an inflammation.

When the fire is extracted, go to the apothecary, and buy *Ol. Lini.* 6oz. *Spir. Vin. Camph.* 2oz. *mix.* and apply it as occaſion requires.—This is ſaid to prevent the riſing of bliſters.

If bliſters have riſen, open them, and dreſs the parts with *ceratum album*, or *ceratum epuloticum*, or *ceratum ſaturninum.*

If there are ſigns of a mortification, apply antiſeptics, both internally and externally.

Perſons burnt with lightning, ſhould take cordials; and if the pain is great, anodynes are neceſſary.

The oil of olives, and emollient fomentations and cataplaſms, are good in burns and ſcalds.

II. *Of Freezes.*

KEEP the parts in cold water 'till the froſt is out. Then uſe emollient fomentations and cataplaſms, with the other remedies uſed in burns.

When people are expoſed to the froſt, they ought to drink cold water, inſtead of ſpiritous liquors, as it will prevent freezing much longer than inflammable ſpirits.

Copperas diſſolved in warm water, and linen-rags dipped therein, and applied often to a freeze, is ſaid to be excellent.

III. *Of the Growth of Hair, the Cauſe of Baldneſs, and how to prevent it.*

A HAIR hath a bulbous root, of an oval ſhape, which is lodged in the ſkin. The hair itſelf is hollow, and is furniſhed with veſſels ſomething like the quills of geeſe, or feathers of birds. Hairs have joints and branches, like ſome ſorts of graſs, and are apt to ſplit at the ends, if worn long without moiſture. They will grow as long as any moiſture remains at their roots, in a body, even if it is dead and mouldered into duſt.

Robuſt perſons have generally ſtrong hair; and thoſe that are feeble, that which is weak.

Malignant and contagious diſeaſes, and the eating of muſhrooms, will ſometimes deſtroy the roots of hairs, and occaſion baldneſs. Violent fevers, that dry up the moiſture that nouriſhes the hair, may alſo cauſe it to fall off. The meeting

with trouble, great ſurprize, and bad humours, often makes the hair turn white or yellow, or cauſes baldneſs, by deſtroying the nutritious juices.

Hair-dreſſers ought to be very gentle in the dreſſing of hair, for pulling of it may weaken the roots, and make it fall off.

I have known baldneſs prevented by a frequent bathing in ſalt-water when the hair began to fall off. The ſalineous particles, and the coldneſs of the water, contracts, braces up, and ſtrengthens the parts relaxed by ſome diſorder.

The following is eſteemed beneficial in baldneſs:

1. Rub the parts with a freſh-cut onion, till they turn red; but if no redneſs appears, it is a bad ſign.

2. Waſh the head every night, with a warm and very ſtrong fomentation, made by boiling bruiſed burdock-roots in white-wine.

3. Or, bruiſe the ſmall ſpiral branches of grape-vines, and mix them with honey, and apply the mixture twice in a day.

4. Or, R. *Ung. Simpl.* 3jv.—*Balſ. Peru.* 3j—*Ol. Nuc. Moſch. Gutt.* x. *mix.* and apply it twice in a day.

Hair-powder and pomatums are nouriſhing to the hair; but if they are too highly ſcented with chymical oils, which are of a burning nature, they may prove injurious.

Some are ſo ſuperſtitious, that they ſuppoſe it is unlawful to nouriſh their hair by powder. I

knew a clergyman that preached upon probation, and the people thought he was unfit for a Miniſter of the Goſpel, becauſe he wore powder on his hair; however, they ſuppoſed it was legal for other clergymen to wear powdered wigs. But we may judge it is lawful to powder our hair, in as much as we have had no command from Heaven that forbids that practice.

CHAP.

CHAP. XLIII.

Account of Preſcriptions—How regular-bred Phyſicians are often treated—Phyſical Receipts for the Cure of Agues, Aſthmas, Bruiſes, Cancers, Coughs, Cholics, Colds, Conſumptions, Cramps, Convulſions, Deafneſs, Diabetes, Diarrhœa, Dropſy, Dyſentery, Epilepſy, Fainting, Fevers, Gout, Gravel, Gripes, Head-ach, Heart-burn, Hypochondriac Diſtempers, Hyſteric Complaints, Hoarſeneſs, Hæmorrhoids, Jaundice, Inflammations, Indigeſtion, Itch, King's Evil, Lethargy, Lowneſs of Spirits, Madneſs, Meaſles, Mortification, Pains, Palſy; Perſpiration to check, or to promote; Phlegm, Pleuriſy, Quinſey, Rheumatiſm, Rickets, Rupture, Scurvy, Shingles, Small-pox, Stitches in the Side, Sprains, Sore Throat, Tetters, Thruſh, Tumours, Vertigo, Vomiting, Ulcers; Urine ſuppreſſed—Heat of—Involuntary—Bloody; Worms, and Wounds; with Directions for Nurſing Children.

THE remedies mentioned in the ſubſequent pages, if properly exhibited, are very efficacious in the cure of diſtempers; and I hope the preſcriptions will be of great utility to people in general, and to thoſe in particular who may be ſettled in places where phyſicians cannot be had, which is often the caſe in many parts of America.

I have mentioned the doſes, and given directions concerning the uſe of the compoſitions, in order to prevent injury to thoſe who may be under the neceſſity of taking medicine without the advice of a phyſician: but all the doſes, excepting thoſe preſcribed for children, are for perſons of an adult age, and muſt be enlarged, or diminiſhed, according to the age and conſtitution of the patient.

As the ſymptoms of diſeaſes are ſometimes very ſubject to mutation, they require different modes of treatment: Hence, the medicines ſhould be changed, or altered, according to the circumſtances of thoſe afflicted with bodily weakneſs and indiſpoſition.

I have often obſerved, that a medicine that will cure a diſeaſe at one time, will not cure it at another. Hence alſo appears the neceſſity of altering our practice, by exhibiting ſome other remedies that will work a radical cure.

Thoſe who attempt to practiſe phyſic, ought to know,

1. What diſeaſe a patient is ſeized with;

2. What his conſtitution is, that is, whether it is ſtrong or weak;

3. What remedies ought to be applied; and,

4. What their ſtrength is, and how they will operate.

But it cannot be expected that thoſe unacquainted with the noble art of phyſic can know all theſe things; and therefore, it will be moſt prudent to ſend for a ſkilful Phyſician where one can be had, and to be guided by his directions. The

ſooner

ſooner he is called, the better; becauſe a diſeaſe is much eaſier cured when it firſt begins, than after it is ſeated.

Some who have called themſelves Phyſicians, have ſuffered diſeaſes to gain ground, by neglecting to make proper evacuations. A patient who appeared to be almoſt gone in a conſumption, and had been given over by his phyſicians as incurable, applied to me for advice.—Said I, what have your phyſicians done for you?—Have they bled you? He anſwered, No.—Have they given you an emetic? No.—Have they given you a cathartic? No.—Have they given you any medicine? Yes: they have given me ſimple ſyrups and decoctions for more than ſix months paſt; but they would not bleed me, nor give me an emetic, becauſe they ſuppoſed I was ſo weak that I could not bear either.—I bled him immediately, gave an emetic, ordered the bark, and ſome other remedies. His cough, night-ſweats, and other terrible ſymptoms, left him, and he ſoon recovered his former health and ſtrength. It is my opinion, that it is almoſt as proper to throw medicines into the fire, as it is to give them to patients, without making thoſe evacuations which are neceſſary to expel the morbific matter.

Much damage has been done by ignorant women, who have ruſhed into the practice of midwifery, without thoſe qualifications which are requiſite for this important buſineſs. I have frequently been called to aſſiſt them when there has not been the leaſt difficulty, except that which

aroſe

aroſe from their ignorance and miſconduct. Sometimes I found they had poured down the decoctions of hot herbs, and had raiſed fevers, &c. Sometimes they had almoſt affrightened the women into convulſions, by telling frightful ſtories, and by talking about the doctrine of original ſin, election, reprobation, the unpardonable ſin, and the torments of hell.—But after I had adminiſtered proper remedies, and had, by encouraging them, brought them out of their deſpair, they have been ſafely carried through their perils and dangers without any uncommon difficulty. It is dangerous for women to venture their lives in the hands of thoſe who know not the conſtruction of the human frame, nor the nature and operations of medicines, and who, by ſcare-crows and bug-bears, bring them into a ſtate of diſcouragement, to the great injury of the child and the mother.

It is thought, that no men are treated much worſe than the Phyſicians have been in ſome parts of the world; for, let their ſkill be ever ſo great, they have frequently been interrupted in their practice, to the great injury of their patients: for, when they have laid a foundation for a cure, other medicaſtors have taken the work out of their hands, and hindered a regular courſe of phyſical operations; juſt as a Divine might be hindered from preaching a ſermon, by being turned out of his pulpit, after he had named his text and the heads of his diſcourſe, by ſome up-ſtart not ſkilled in divinity.

I have often thought that this illegal practice has been the cauſe of the death of thouſands; for

whilſt the quack is adminiſtering his *noſtrums*, the diſeaſe gains ground, and an end is put to the life of the patient.

Regular-bred Phyſicians are frequently impoſed upon in this way, for many people are very fond of thoſe who have raiſed their fame by quackery: Hence they leave the man of ſkill, and run after impoſtors.

Sometimes when a ſkilful Phyſician has preſcribed proper remedies for a patient, his orders are diſobeyed by the nurſes; and whilſt he is abſent, in comes Mother Midnight with her budget of herbs, and makes and adminiſters decoctions deſtructive to the relief of the diſtreſſed, 'till at length death cloſes the ſcene.

I have often wondered at the madneſs and folly of ſome people, who will venture their lives in the hands of quacks, ſooner than they will venture their eſtates. When they go to law, they will be ſure to employ a good lawyer, for fear of loſing their money; but when they are taken ill, and their lives are in imminent danger, they will paſs by a ſkilful Phyſician, and employ an impoſtor, and thus perhaps loſe their lives by their folly.

A Phyſician muſt turn out at all times in the night, even in the moſt violent ſtorms, and take care of both the rich and the poor; and he muſt wait a long time for his money, as the merchant, baker, butcher, brewer, &c. muſt have their payment firſt; and then, if he charges but a very moderate price for his ſervices, he will be curſed, railed at, defamed, and at laſt cenſured to the infernal regions, as an extortioner. I do not ſay

that

that this is the practice in every place within the circle of my acquaintance; but it has been too much the practice in ſome places, and it is now high time there was a reformation.

I own that people have a right to employ what phyſicians they pleaſe, providing they are men of ſkill; but they have no right to commit ſelf-murder, by employing quacks.—Let all, therefore, who may have any regard for their own lives, and the lives of thoſe under their care,

1. Send for a man of ſkill—who is very temperate, humane and juſt; becauſe a drunkard, unmerciful, or inhumane perſon, is by no means fit for the important work.

2. Be very ſtrict in obſerving his directions.

3. Let him not be interrupted by impoſtors.

4. Let him viſit the patient as often as may be neceſſary.

5. If other advice ſhall be thought needful, give him notice.

6. If another phyſician is called in, let him that has had the care of the patient firſt, tell the ſymptoms of the diſeaſe, what remedies have been applied, and how they have operated.

7. After they have preſcribed remedies, ſtill employ the firſt phyſician. Let the ſame directions be obſerved in regard to ſurgeons and midwives.

This is much ſafer than to change phyſicians, or employ quacks, and female impoſtors, who frequently impede the regular practice of well-bred phyſicians, and bring deſtruction on their patients.

Phyſicians

Phyſicians ought to viſit their patients often when they are ſmitten with dangerous diſorders, and eſpecially if the ſymptoms vary, becauſe new remedies may be needful.

A conſtant fire ought to be kept in a room where a patient is ill; and if the diſeaſe is of a putrid kind, the fumes of cyder-vinegar, burnt in a hot crucible, is an excellent antiſeptic; it is not only good for the patient, but prevents the by-ſtanders from taking the diſtemper.

Theſe things being premiſed, I proceed to the Phyſical Recipes, and ſhall write in Engliſh, for the benefit of thoſe unacquainted with Latin.

Ague.—Boil four ounces of the beſt Peruvian bark in a gallon of water, till half is conſumed; and take two ounces of the decoction thrice in a day, after proper evacuations have been made.

Aſthma.—Take twelve ounces of the milk of ammoniacum; of the ſyrup of ſquills, four ounces: mix, and take a ſpoonful when the ſhortneſs of breath is troubleſome.

Bruiſes internal.—Take of Lucatellus's balſam, one ounce; conſerve of roſes, two ounces; ſyrup of red poppies, a ſufficient quantity: mix, and take a drachm three times in a day.

Bruiſes external.—Take of the ſpirits of roſemary, one pint; of hard Spaniſh ſoap, three ounces; camphor, one ounce: digeſt the ſoap in the

the ſpirit till it is diſſolved, then add the camphor. Rub ſome of the compoſition into the parts affected, and repeat it as occaſion may require. It may alſo be taken inwardly, from 30 to 50 drops in a glaſs of water.

Cancers.—Apply the extract of hemlock as a plaiſter, for a long time. Some have taken it inwardly, by beginning with two grains in the morning, and as many in the evening; increaſing the doſe gradually to fifteen grains. But ſometimes it will make the patient giddy-headed.

Cough.—Take of ſpermaceti in powder, three drachms; oil of olive, half an ounce; yolk of egg, a ſufficient quantity; of ſpring-water, ſix ounces; of ſtrong cinnamon-water, two ounces: mix. The doſe is two ſpoonfuls, to be taken when the cough is troubleſome.

Cholic.—Bleed; give an infuſion of camomile-flowers; inject anodyne clyſters; exhibit gentle cathartics, &c. But ſend for a Phyſician.

Colds.—Take of diſtilled vinegar, two ounces; drop into it, by degrees, the ſpirits of ſal-ammoniac, till the effervеſcence entirely ceaſes. The doſe is half an ounce twice in a day, in an equal quantity of the ſyrup of marſh-mallows. It will promote ſweat.

Conſumptions.—Take ground-ivy, colts-foot, and liquorice-root, of each two ounces; elecampane, one

one ounce: boil them in nine quarts of water to a gallon. A quarter of a pint may be drank at once, and taken as common drink, or three or four times in a day. It is good for ſpitting of blood, and inward bruiſes, as well as the conſumption.

Cramp.—Drink a glaſs of tar-water night and morning. The taking hold of a roll of brimſtone, which will ſoon break, gives relief. The ſame remedies that are preſcribed for bruiſes, are alſo excellent.

Convulſions.—Take of native cinnabar, one ſcruple; of the conſerve of red roſes, four grains: mix, and form it into a pill. This quantity is to be taken every night and morning. A decoction of the powder of Valerian root may alſo be taken.

Deafneſs.—Take of the oil of bitter almonds, three drachms; ſpirit of ſal-ammoniac, one drachm. Drop a few drops into the ear at bed-time, and ſtop it with black wool.

Diabetes.—Take of the powder of Peruvian bark, one ounce; mix it into an electuary, with ſimple ſyrup. Take the quantity of a nutmeg three or four times in a day. Simple ſyrup is made by diſſolving in water, ſo much of double-refined ſugar as will make a ſyrup.

Diarrhœa.—Take of rhubarb in powder, fifteen grains; ſcordium electuary, half a drachm; mix.

This

This is for one doſe, and muſt be repeated as occaſion ſhall require.

The patient muſt abſtain from malt-liquors, and may take the following, *viz.* Take of burnt hartſhorn, two ounces; gum-arabic, two drachms; of water, three pints: boil till one-third is conſumed. This is preſcribed for common drink.

Dropſy.—Take of the powder of jalap, half a drachm; powder of ginger, ſix grains; ſyrup of buckthorn, a ſufficient quantity; mix. This may be taken twice a week. Alſo,

Infuſe a handful of camomile-flowers in a quart of boiling water, and add a gill of melaſſes ſpirits. Take a quarter of a pint twice in a day. Or,

Take of the roots of zedoary, two drachms; dried ſquills, rhubarb, and juniper-berries bruiſed, of each one drachm; the powder of cinnamon, three drachms; ſalt of wormwood, one drachm and an half: infuſe in a pint and an half of old-hock wine. Strain, and take a gill twice or thrice in a day: It is a powerful diuretic.

Dyſentery.—Take of the jelly of ſtarch, two ounces; of ſtyptic tincture, one ounce; extract of opium, two grains: mix. For an enema.

Purges of rhubarb are excellent, alſo the common drink directed in the diarrhœa.

If the patient has a fever, let a drachm of nitre be diſſolved in the common drink: a quarter of a pint may be drank four or five times in a day.

Epilepſy.

Epilepſy—Take two ounces of the powder of Valerian root; of ſimple ſyrup, ſix ounces: mix; and take a quarter of an ounce twice in a day.

Fainting.—Take of ſimple alexiterial water, half a pint; of treacle water, two ounces; ſyrup of red poppies, half an ounce; mix. Two or three ſpoonfuls may be taken at a time.—Or,

Take of wood-ſoot, two ounces; of aſafœtida, one ounce; of proof ſpirit, a quart: digeſt and ſtrain. Take two drachms twice in a day. All volatiles are good for fainting.

Fevers, inflammatory.—Take of the ſalt of tartar, one ounce and an half; of the juice of lemons, eighteen ounces; of ſpiritous alexiterial water, half a pint; of ſpring water, a quart; of loaf ſugar, three ounces: mix. Take three large ſpoonfuls thrice in a day.—Or,

Take of ſal-nitre, half an ounce; of white ſugar, two ounces; cochineal, one ſcruple; of ſpring water, two pounds and an half: boil to a quart, and pour off the decoction when it is ſettled. The doſe is four ounces three times in a day.

Vomits and purges may alſo be needful.

When a fever is too high, it ought to be lowered by evacuations, coolers, &c.: and if it is too low, it ought to be raiſed by cordials, bliſters, &c. I have made a practice of bleeding patients in inflammatory fevers in America, and never perceived that it hurt any perſon. Nay, I have had 185 patients under my care at one time, that were

ill with fevers, the greateſt part of whom I bled; and they all recovered excepting a woman, who was ſo far gone when I was called to her, that ſhe could not take any medicine.—My practice was,

1. To bleed, if the patient was plethoric, and the fever inflammatory.

2. To exhibit an emetic, when there was too great a quantity of bile.

3. To keep the body open with laxatives and gentle purges.

4. To lower the fever, if it was too high, by nitrous preparations, and an antiphlogiſtic regimen.

5. To raiſe it, if it was too low, by bliſters, cordials, &c.

6. To exhibit antiſeptics freely, when the patient could bear them.

I have found preparations of the gum myrrh very beneficial, when the bark could not be taken.

I frequently obſerved, that where phyſicians had neglected to bleed their patients, and to make other evacuations, that death commonly cloſed the ſcene.

I find that bleeding is very much exploded in London, although its effects have been ſo beneficial in America. But it appears to me, that there is a difference in the climates, which makes bleeding not ſo requiſite here, as it is in the weſtern parts of the world.

Bleeding in general has been neglected in America, in the putrid ſore throat; but I have often thought,

thought, that in ſome caſes it may be of great ſervice, and eſpecially when the patient is firſt taken ill, and the ſymptoms are inflammatory.

In the year 1783, I viſited a patient who had been ill with this diſorder about ſeven days, and could neither ſpeak nor ſwallow any thing. I at a venture opened a vein, and it gave immediate relief. In leſs than an hour he could ſpeak very well, and take medicine. He recovered in a few days.

Bleeding, in my opinion, is proper when there is too much *craſſamentum* in the veſſels, or when the veins and arteries are too much crouded. But the pulſe are the beſt guide; for when they are full, ſtrong, and tenſe, they indicate that phlebotomy is needful; and if it is neglected, the fluids may ſtagnate, and bring on putrid diſorders. Bleeding when a patient is plethoric, makes way for a free circulation; and thoſe whoſe blood circulates freely, can endure the cold much better than thoſe whoſe ſanguinary veſſels are crouded. But the pulſe may be raiſed by rarefaction; and when that is the caſe, bleeding may be improper. It ought to be known, before an attempt is made to bleed a patient, whether it is a plethora, or a rarefaction, that raiſes the pulſe.

The fevers are ſo numerous, that I ſhall not mention the whole of them in this Oracle; and therefore will conclude by obſerving, that if they are intermitting, the bark is a ſovereign remedy; if nervous, nervines, &c.

Gout.—Take half a dram of gum-guaicum in powder; of conſerve of roſes, one ſcruple; of

ſimple ſyrup, a ſufficient quantity for a mixture. This is for one doſe, to be taken every morning. —Or,

Take of the ſpirits of ſal-ammoniac, and liquid laudanum, of each half an ounce; of the ſpirits of wine camphorated, three ounces: mix. This is excellent for external uſe.

But about 12 drops of camphorated ſpirits ought to be taken in a little water, to defend the ſtomach when the external remedy is applied.

Gravel.—Take of the beſt white ſoap, half a drachm; of the oil of juniper, five drops; of ſimple ſyrup, enough for a bolus. This quantity is to be taken twice in a day.—Or,

Take of hard ſoap, one ounce; oil of aniſe-ſeeds and carraway-ſeeds, of each half a drachm; of ſimple ſyrup, a ſufficient quantity: mix. The doſe is a drachm thrice in a day.—Gentle purges and anodynes are ſometimes needful.

Gripes.—See *Cholic.*

Head-ach.—Bleeding, emetics, cathartics, cephalics, &c. as *Rad. Valerian.* Let the cauſe of the pain be enquired into before remedies are exhibited.

Heart-burn.—Take two or three drachms of *magneſia alba* every day.

Hypochondria—Take of Virginia ſnake-root, and *hiera picra*, of each two drachms; extract of gentian,

tian, half an ounce: make them into pills with white ſyrup. Take half a drachm night and morning.

Hyſterica.—Take of the milk of ammoniacum, one pint; of the tincture of aſafœtida, half an ounce; mix.—The doſe is two ſpoonfuls, as occaſion may require.

Hoarſeneſs.—Take of ſpermaceti, two drachms; diſſolve it in the yolk of an egg: add of alexiterial water, ſix ounces; of nutmeg water, one ounce; of white ſugar, a drachm and an half; mix.—This quantity may be drank, or taken at two or three times.

Hæmorrhoids—Take of lenitive electuary, and the flour of ſulphur, of each equal parts; of ſimple ſyrup, enough for an electuary. A drachm may be taken night and morning.

Jaundice.—Take of white ſoap, half a drachm; oil of juniper, five drops; of ſimple ſyrup, enough for a mixture. This quantity may be taken twice in a day.—Sometimes emetics and gentle purges are very beneficial.

Inflammations.—Bleeding, emetics, cathartics, nitrous preparations, ointment of marſh-mallows, anodynes, &c.

Indigeſtion.—After the operation of an emetic, take of the powder of ginger, and long pepper, of each fifteen grains; conſerve of orange peel,

a ſcruple; ſimple ſyrup, enough for a bolus: mix. A bolus is only one doſe.

Itch.——Take of corroſive ſublimate, half a drachm; diſſolve it in a pint of boiling water; and at bed-time, waſh the parts affected. Be very careful of the ſublimate, for a few grains taken inwardly before it is diſſolved, will ſoon kill a patient. But the ſolution applied outwardly, with prudence, will do no harm, and wholly cure the itch. It may be proper to take the bolus preſcribed for the hæmorrhoids, ſeveral times, whilſt the ſolution is externally applied.

King's Evil.—Take one drachm twice in a day of ſea-oak calcined. This plant is alſo called ſea-wrack, and is common on rocks that are left dry at ebb-tide. The leaves gathered in July, beat in a mortar, and put into a glaſs, with the ſame quantity of ſea-water, will, after ſtanding ten or fifteen days, make an excellent liquor for diſcuſſing of glandular ſwellings: it penetrates through the ſkin, exciting a ſlight ſenſe of pungency. The parts ſhould be rubbed two or three times in a day with the ſtrained liquor, and be afterwards waſhed with clean water. Let the calcined powder be taken in the mean time.

Lethargy.—Take of the ſalt of hartſhorn, two drachms; of ſpring water, a pint; of ſpiritous alexiterial water, one ounce; of loaf ſugar, half an ounce: mix. Take four large ſpoonfuls thrice in a day.——Bleeding, emetics, bliſters, ſtimulating enemas, volatiles, &c. are often beneficial.

Lowneſs

Lowneſs of Spirits. --- Take ſimple alexiterial water, half a pint; of ſpiritous alexiterial water, two ounces; of cordial confection, two drachms; mix, and take three or four large ſpoonfuls every ſix hours.

Madneſs.---Bleed, vomit, purge, bliſter, bathe in warm water; uſe gentle exerciſe, a ſlender diet, travelling, &c.; or uſe thoſe remedies that your Phyſicians ſhall think may be beſt.

Meaſles.---Bleed, if the patient is phlethoric; vomit, if there is too much bile; and purge, as occaſion may require. Let not the patient be kept too warm; and let him have a plenty of boiled water, with a little nitre, if he is feveriſh.

I had the meaſles when I was young, and was almoſt murdered by being kept in a hot bed for five days, without being ſuffered to get up; by having inflammatory decoctions poured down, and by being kept from drinking water. This raiſed a high fever, and brought on a delirium; but an hemorrhage at my noſe ſupervened, which gave ſome relief. The nurſes informed me that I fainted away when I was permitted to ſit up; but I was not ſenſible of it. This evil practice of keeping patients too hot, of not letting them have water, a proper air, &c. has been the death of thouſands who have had the ſmall-pox and meaſles; but modern practice teaches better things.

Mortification.---Bleed, if it is needful, and exhibit antiſeptics plentifully.

Pain.---The brain is ſaid to be the ſeat of pain, becauſe it is the ſeat of ſenſation; but moſt authors have imputed the cauſe of pains to the ſtretching of the nerves.

Pain may be cauſed by a variety of diſeaſes, and by bruiſes, wounds, diſlocated joints, broken bones, &c.

Anodynes, gentle opiates, an infuſion of camomile, &c. are proper remedies for patients afflicted with pain.

Palſy.---Take two ounces of the powder of Valerian root, and of ſimple ſyrup ſix ounces; mix, and take two drachms twice in a day.

Perſpiration to check.---Elixir vitriol, Peruvian bark, &c.

Perſpiration to promote.---Take of alexiterial powder, twenty-four grains; of ſimple ſyrup, enough for a mixture. This quantity may be taken once every ſix hours, and the patient may drink an infuſion of camomile.

Phlegm.---Take of the milk of ammoniacum, twelve ounces; of the ſyrup of ſquills, four ounces; mix. A large ſpoonful is a doſe.

Pleuriſy.---Bleed, and make other evacuations; take of barley, raiſins ſtoned, and figs, of each two ounces; of liquorice root, half an ounce; of water, two quarts. Boil the barley firſt, then add the raiſins, and afterwards the figs and liquorice: half

half of the water muſt be boiled away. This may be drank freely.

Quinſey.—Bleed, give warm water-gruel, barley-water, and chicken-broth, as occaſion may require.

Take of ſenna, one ounce and a half; cryſtals of tartar, three drachms; of carraway-ſeeds, two drachms; of water, one pint. Boil the tartar till it is diſſolved, and whilſt it is boiling, pour it on the other ingredients, and ſtrain when it is cold.

To three ounces of this infuſion, add one ounce of the ſyrup of buckthorn, and half an ounce of carraway water. This may be taken two or three times in a week for a purge.

For a Gargle.—Take of the tincture of roſes, one pint; of the honey of roſes, two ounces. Mix.

Rheumatiſm.—There are different kinds of rheumatiſms, and hence there muſt be different modes of treatment.

When there is an inflammation, bleeding is proper, and alſo nitrous preparations.

Emetics, cathartics, anodynes, diaphoretics, &c. may all be requiſite in ſome caſes.

Sometimes, after evacuations, the cold bath has done great ſervice.

Rickets.—Magneſia alba may be taken, and a ſtrengthening plaiſter applied to the back. Some plunge their children into cold water, rub them with

with a cloth, and afterwards make them ſweat between two blankets. The water ought not to be too cold, and the child ſhould be dipped with its face downward, to prevent its being ſtrangled.

Rupture.—The parts ſhould be gently reduced to their former poſition, and then fomented with the following, *viz.* Take of oak-bark, an ounce and an half; of ſmiths forge-water, three pints; boil to one quart, then add two drams of roche allum. A ſtrengthening plaiſter is alſo good, and corroborants taken inwardly.

Scurvy.—Abſtain from liquors boiled in copper veſſels; and take freely of the juice of lemons, and other acid vegetables.

Shingles.—Abſtain from pork, malt liquors, and cheeſe; gentle purges ſhould be exhibited.

Take of gum guaicum, half a ſcruple; Æthiop's mineral, half a drachm; ſimple ſyrup, enough for a bolus; mix, and take this quantity twice in a day.

Small-pox.—If the inflammation and pain is great; bleed; keep the patient cool, and let him exerciſe as much as his ſtrength will admit. Nitrous decoctions, and a plenty of diluting liquors may be drank cold: nothing ought to be taken that will inflame the blood. Sometimes emetics and cathartics are of ſervice; and calomel is excellent in many caſes, and likewiſe the bark. I obſerved when I practiſed inoculation, that when proper

evacuations were made in the beginning of the diſtemper, the patients had it very light.

Stitches in the Side.—Take half a pint of neats-foot oil; of the ſpirits of wine camphorated, and the ſpirits of ſal-ammoniac, of each two ounces; mix, and rub into the parts affected:—taking in the mean time, about twelve drops of camphorated ſpirits, to defend the ſtomach.

Sprains.—Apply opodeldock to the parts injured, and take in the mean time from thirty to ſixty drops of the *balſamum traumaticum.*

Sore throat.—Take of Mindererus's ſpirit, and the ſyrup of marſh-mallows, of each an ounce; mix, and ſweaten with honey. This quantity may be taken at bed-time, or as occaſion may require.

Tetters.—Take of quick-ſilver, one ounce; of ſtrong ſpirits of nitre, two ounces; digeſt in a ſand-heat till the mercury is diſſolved, and add, whilſt it is hot, one pound of ſweet oil: ſtir the compoſition till it is cold, then rub ſome of it into the parts affected, and repeat it till a cure is completed.

Thruſh.—Take of the freſh inner bark of elm, four ounces; of water, three pints; boil till one-third is conſumed; ſtrain, and ſweaten with honey. A gill or more may be taken at once; it may alſo be uſed warm as a gargle.

Tumours.

Tumours.—If they muſt be brought to a ſuppuration, take of white-lily roots, onions, and lint-ſeed flour, of each one ounce: boil in a ſufficient quantity of water, till they are ſoft, and add one ounce of Burgundy pitch. Apply this as a poultice.

If they muſt be diſcuſſed, take of the grounds of ſtale beer, a pint; of oat-meal, a ſufficient quantity: boil to the conſiſtence of a poultice; and add, of the oil of olives, ſix ounces: then apply it to the parts affected.

Vertigo.—Bleed and purge, with the following, *viz.* Take of the ſacred tincture, one ounce; of the compound ſpirits of lavender, one drachm; mix. The whole may be taken at once, and repeated as occaſion may require.

Vomiting.—Take of the dried leaves of ſpear-mint, one ounce; then pour on a pint of boiling ſimple mint water. Strain, when cold, and take a large ſpoonful every hour.

Ulcers.—Take half a pound of yellow baſilicon; of verdigreaſe prepared, one drachm; mix: and apply ſome of it as a plaiſter.—It deterges, cleanſes, and wears away fungous fleſh.

Urine ſuppreſſed, and heat of.—Take of nitre, half an ounce; white ſugar, two ounces; of cochineal, one ſcruple; of ſpring water, a quart and half a pint; boil to a quart, and pour off the decoction after it is ſettled. The doſe is two or three ounces, three or four times in a day.

Urine,

Urine, involuntary.---See *Diabetes.*

Urine, bloody.—Take of red roſe-buds, half an ounce; oil of vitriol, twenty drops; boiling water, two pints and an half; of loaf ſugar, an ounce and an half; when it is cold, ſtrain off the liquor. The doſe is three ounces thrice in a day.

Worms.—Take of prepared tin, one pound; conſerve of wormwood, two ounces; of ſimple ſyrup, enough for an electuary; mix. Half an ounce is a doſe, to be taken every morning.

Wounds.—Dreſs them with dry lint, general balſam, ointment of gum elemi, yellow baſilicum, &c.

If the wounds are internal, ſee *Bruiſes.*

Directions for Nurſing Children.

Infants ſhould be kept clean, and their clothing ought to be looſe and cool; but not ſo cool as to make them take cold. It was formerly the practice in America, to wrap a flannel ſwathe, that was near two yards in length, tight round the waiſt of every new-born infant, to make it grow ſtraight. This pernicious practice has undoubtedly been the cauſe of the death of thouſands; for it obſtructed the circulation of the fluids, hindered digeſtion, generated crudities, and produced convulſions.—It was alſo the practice to keep three or four caps on their heads, and to ſqueeze their heads together, when, according to the vulgar expreſſion, they

appeared

appeared to be open. But this practice was alſo very hurtful; for it often injured the brain, and impaired the ſenſes.—The head of the child, as well as the body, ought to be looſely clothed, and its formation left to the action of the *dura mater*; for the open or ſoft parts will naturally grow hard, without any manual operations.

From an infant's birth, till its mother's milk can be obtained, no other diet will be requiſite but milk and water, which may be given luke-warm; ſome add a little ſugar to the compoſition. Warm milk, however, juſt taken from an animal, is the beſt.

If the child is to be nurſed without the breaſt, equal parts of milk and water will be ſufficient at firſt; and as ſtrength increaſes, a more ſolid diet will be required.

The milk of the mother may be injured by diſeaſes, frights, weak nerves, anxiety of the mind, &c. any of which may injure its quality, diminiſh its quantity, or cauſe it to be wholly dried up. In ſuch caſes it is proper to wean the child; but if it will not feed with a ſpoon, or if it is diſordered in its ſtomach and bowels, it may be proper to ſeek for another nurſe, taking care to procure one that is healthy. She ought to ſee that the child is not infected with any dangerous complaint; becauſe it may be communicated to her by ſuckling the infant:—or a diſeaſe may be communicated from her to the infant, if ſhe has any diſagreeable infection, not only by her milk, but by ſpoon-food, many having the naſty practice of firſt put-

ing

ing the ſpoon into their own mouth, and then into the child's.

Healthy women, who accuſtom themſelves to exerciſe, bring forth children more robuſt than thoſe that are delicate. A child ought to be put to the breaſt within ten or twelve hours after it is born; this will excite the milk to flow ſooner than could be expected, and tend to prevent a fever.

Wet nurſes ought to eat one meal of animal food in a day, with a proper quantity of vegetables; broth, or milk, are proper for their ſuppers and breakfaſts: and they ſhould abſtain from acids, becauſe they will cauſe their milk to curdle, and generate griping pains in the ſtomach and bowels of infants. If a child is afflicted with acidities in the *prime vie*, let it take freely of *magneſia alba*; about eight or ten grains may be given at a time, in a ſpoonful of milk and water; or, three or four drops of the ſpirits of hartſhorn may be exhibited in the milk, &c. The child may alſo take freſh broth once in a day, without any fat.

When children are fed, to prevent ſtrangulation, their heads and bodies ought to be raiſed almoſt erect, and not ſuffered to lie in a horizontal poſture, as is too often the practice among ignorant nurſes.

Gentle exerciſe is very beneficial to infants; it preſerves and reſtores their health, and makes them vigorous when they grow up.—But let us obſerve,

1. That this exerciſe ought to be very gentle.

2. That the hoiſting and toſſing of an infant up and down with violence, hinders digeſtion; gene-

rates

rates acidities, gripings, convulſions, &c.; may break or bend its tender ribs, and expoſe it to pain when the cauſe is not thought of.

3. That children ſhould not be kept too warm in bed, nor be nurſed in a ſmall room, becauſe too ſmall or crouded rooms cauſe a relaxation, and ſubject them to colds when expoſed to the open air.

4. When they are dreſſed and undreſſed, their bodies ſhould be gently rubbed before the fire, to promote a free circulation.

5. If an acid in the ſtomach and inteſtines produces fits, griping pains, nauſeas, vomitings, &c. give from five to ten drops of antimonial wine. If it doth not operate in half an hour, repeat the doſe. It commonly proves emetic and cathartic, and does much good to the infant. After the operation, make free uſe of the *magneſia*.

6. That young children ſhould not be fed after bed-time, nor forced to eat when they ſeem to have got enough.

7. Do not awake a child when it is aſleep, becauſe it will make it ſick and peeviſh: but divert and keep it awake in the day-time, and then it will reſt in the night.

8. When teeth begin to appear, give a child a piece of fleſh to chew, every now and then; but ſee that it does not choke itſelf.

9. Be careful of expoſing an infant to the cold air: when it is carried abroad, let it be ſufficiently clothed; and let not the nurſe ſit ſtill with it in the wind, but let it be kept in motion, to preſerve it from taking cold.

CHAP.

CHAP. XLIV.

Of PHYSIOLOGY.

A Definition of ANATOMY—*Of the Bones, Cartilages, Ligaments, Fibres, Membranes, Muſcles, Glands, Tendons, Arteries, Veins, Nerves, Teguments, Teeth, and Nails, which belong to the Human Body.*

PHYSIOLOGY is the hiſtory of the human frame; and Anatomy conſiſts in an accurate diſſection of all its parts, in order to make known their ſituation, figure, connexion, ſtructure, and mutual relation to each other, for the benefit of Philoſophers, Phyſicians, and Surgeons. I ſhall therefore treat of the Solids and Fluids, with the vital, natural and animal functions of the body.

The firſt anatomical production that was printed in Engliſh, was publiſhed by Mr. Thomas Vicary ſurgeon in London, about the year 1548; and ſince his time, a number of ingenious Phyſicians and Surgeons have made great diſcoveries and improvements in the art, which have done honour to their profeſſion.

I ſhall, in this chapter, give a ſhort deſcription of the Solids in the human body, and of the Fluids in the next. And,

I. *Of* OSTEOLOGY; *or, A Deſcription of the Bones.*

A BONE is a web of ſolid fibres, which is compoſed of three ſubſtances, called *compact*, *ſpungeous*, and *reticula*. The ſkin of a bone is called the *perioſtium*, and that of the ſkull the *pericranium*.

The bones form and ſupport the whole body; they are deſtroyed in living animals, by the admiſſion of the air, or by the lodging of blood upon them.

The diſeaſes of the bones are pains, caries, exoſtoſes, rickets, fractures, fiſſures, *ſpina ventoſa*, and luxations; but fractures and luxations are produced by accidents.

There are 61 bones in the head, 64 in the trunk, 60 in the hands and arms, and 60 in the legs and feet—in the whole 245.—But ſome Anatomiſts reckon 248; and others, 249; beſides the *oſſa ſeſamoidea*, which are very ſmall bones that are found in the joints of the hands and feet, being in the form of ſeſamum ſeeds. They are 48 in number, according to ſome Anatomiſts; but others reckon not ſo many.

The names of the Bones, with their number, are as follows, *viz.*

1. *The Bones of the Head.*

LATIN NAMES.	ENGLISH NAMES.	No.
Os Frontis,	The bone of the forehead,	1
— *Occipitis*,	In the back of the head,	1
Oſſa Parietalia,	Two bones in the upper part of the head, -	2
— *Temporum*,	The temple bones, -	2
Officula Auditus,	Little bones of the ears,	8
Os Ethmoides,	Bone between the eyes,	1

Latin Names.	English Names.	No.
Os Sphenoides,	It runs into the baſis of the ſkull from one temple to the other	1
Oſſa Malæ,	The bones of the cheeks,	2
— *Maxillare*,	The jaw-bones, -	2
— *Unguis*,	The inner bones of the eyes,	2
— *Naſi*,	The bones of the noſe,	2
— *Palati*,	The bones of the palate,	2
Vomer,	A bone juſt above the palate,	1
Maxilla Inf.	The bone of the lower jaw,	1
Dentes Inciſivi,	The upper and under fore-teeth	8
— *Canini*,	The dog teeth, -	4
— *Molares*,	The grinders, or large teeth,	20
Os Hyoides,	A bone between the root of the tongue and the top of the wind-pipe, -	1
	Total 61.	

2. *The Bones of the Trunk.*

Vertebræ Cervicis,	Bones of the neck,	7
— *Dorſi*,	—— of the back,	12
— *Lumborum*,	—— of the lines,	5
Oſſa Sacri,	The loweſt bones in the back but three, -	6
— *Coccygis*,	The loweſt bones in the back	3
— *Scapulæ*,	The bones called the ſhoulder-blades, -	2
— *Claviculæ*,	The collar-bones,	2
— *Coſtæ*,	The ribs, -	24
Os Sternum,	The great bone in the fore-part of the breaſt,	1
Oſſa Innominata,	Bones juſt above the hips, called *Os Ilium*, -	2
	Total 64.	

The *Os Pubis* ought to have been added.

3. *The Bones of the Arms and Hands.*

Latin Names.	English Names.	No.
Os Humerus,	The upper bones of the arms,	2
— *Ulna,*	The great bones of the arms below the elbow,	2
— *Radius,*	The ſmaller bones of the arms below the elbow,	2
— *Carpi,*	The bones of the wriſts,	16
— *Metacarpi,*	The bones between the wriſts and fingers,	8
— *Digitorum,*	The bones of the thumbs and fingers,	30
	Total 60.	

4. *The Bones in the Legs and Feet.*

Oſſa Femoris,	The upper bones of the thighs,	2
Rotula, vel *Patella,*	The knee-pans,	2
Tibia,	The largeſt bones in the legs,	2
Fibula,	The ſmalleſt bones in the legs,	2
Oſſa Tarſi,	Bones between the ancles and thoſe which join the toes,	14
— *Metatarſi,*	The bones of the feet which run to the toes,	10
— *Digitorum,*	The bones of the toes,	28
	Total 60.	

As the *Os Pubis* contains two bones, our number is augmented to - - 247

Beſides the *Seſamoidea,* which are - 48

Bones in the human body, - 295

Bones, like other things, often receive new names.

The

The teeth are bones, whoſe uſe is to chew the food, and make it more nouriſhing to the body.

Of the Nails.

The nails are whitiſh, tranſparent bodies, much like horn. They are ſuppoſed to have their origin from the *papillæ* of the ſkin, or a continuation of the *epidermis*. Their uſe is to corroborate and defend the ends of the fingers and toes.

Of the Hairs.

The hairs are ſmall round long bodies, which ariſe from the ſkin; their roots are hollow, like the roots of birds feathers. Their uſe is to cover and preſerve certain parts from the cold. *See p.* 340.

Of the Skin.

The ſkin is an outward covering, which conſiſts of four parts:—the firſt is compoſed of membranes and nervous fibres: the ſecond is formed of the capillary threads of the nerves: the third is made of a mucous ſubſtance; and the fourth, or outermoſt part, is compoſed of a thin tranſparent ſenſible membrane. The uſe of the ſkin is to defend the nerves and other parts againſt external injuries.

II. *Of* SARCOLOGY.

THIS treats of the ſoft parts of the human body, and is divided into *Myology*, *Splanchnology*, *Angeiology*, *Neurology*, and *Adenology*.

Myology treats of the muſcles.

Splanchnology, of the entrails.

Angeiology, of the veins, arteries, and other veſſels.

Neurology, of the nerves. And,

Adenology, of the glands.

But before I proceed to deſcribe thoſe parts, I will juſt premiſe,

1. That a cartilage is a griſtle, whoſe uſe is to cover the extremities of the bones, and unite them together at the joints.

2. That a ligament is a white fibrous ſubſtance, which is hard to break or extend. It ſerves to join and preſerve the bones and other parts of the body from injuries. Thoſe of the bones are void of ſenſation; but thoſe of other parts are not.

3. That a fibre is a round oblong veſſel, which is ſaid to take its origin from the brain and ſpinal marrow. Its uſe is to convey the animal ſpirits to all parts of the body.

4. That a membrane is a nervous, fibrous, broad, white ſpreading ſubſtance; whoſe uſe is to line the principal cavities of the body, and make the veins and arteries.

5. That a tendon is the extremity of a muſcle, where its fibres run into a ſpringy ſtrong cord. Their uſe is, *firſt*, to confine the fleſh, and prevent its obſtructing the motion of a limb near the joint—*ſecondly*, to prevent clumſineſs in particular places — *thirdly*, to keep the fleſhy part of a muſcle near the centre of motion — *fourthly*, for the better admitting of that friction, which, in leſs

compact

compact parts, would have been very injurious, were not the flesh braced and strengthened by the tendons.

I. *Of* MYOLOGY; *or, A Description of the Muscles.*

A MUSCLE is a mass of fibres covered with a membrane, and being capable of contraction and extension, is the principal instrument of voluntary motion; such as, that of the heart, veins, arteries, nerves, stomach, intestines, bladder, &c.

A muscle has a head, belly, and tail.—The head is the tendinous part, which is fixed on the joint, and is called its *origin.* The belly is the middle, or fleshy part, whose fibres are truly muscular. The tail is the tendinous part inserted into the part which is to be moved by it, and is called the *insertion.*

Let us observe, 1. That the action of a muscle will make it grow harder and shorter, it being capable of contracting till it is shortened one-third.

2. That the diameter of a muscle in action is greatly increased.

3. That if the brain is injured to a certain degree, all the muscles subservient to the will become paralytic.

4. That if the *cerebellum* is injured, all the involuntary motions cease.

5. That if a nerve or an artery joining to a muscle is tied or destroyed, the muscle becomes paralytic.

6. That irritation upon the muscles will produce motion.

7. That ſome muſcles continue to act, after all communication with the nerves and blood-veſſels is taken away.

8. That the action of the muſcles is inſtantaneous; and, in moſt parts of the body, ſubſervient to the will.

This laſt appearance is contrary to the opinion of ſome men who have been famous in anatomy; as Keil, Boerhaave, &c.

Some Anatomiſts make 529 muſcles; others, 446; and others, 435. The ſubſequent Table agrees with the latter.

Parts.	No.	Parts.	No.
Forehead,	2	Elbows,	12
Occiput,	2	*Radii*,	8
Eye-lids,	6	*Carpi*,	12
Eyes,	12	Fingers,	48
Noſe,	7	Reſpiration,	57
External ear,	8	Loins,	6
Internal ditto,	4	*Abdomen*,	10
Lips,	13	Teſticles,	2
Tongue,	8	Bladder,	1
Palate,	4	*Penis*,	4
Larynx,	14	*Anus*,	4
Pharynx,	7	Thighs,	30
Hyoides,	10	Legs,	22
Under-jaw,	12	Feet,	18
Head,	14	Toes,	44
Neck,	8		
The ſhoulder-blades,	8	Total	435
Arms,	18		

The

The muſcles are ſo numerous, that I have not room to give a complete table of their names in this book.

II. *Of* SPLANCHNOLOGY; *or, A Deſcription of the Entrails.*

THERE are two kinds of Inteſtines, *viz.* the *great* and the *ſmall*. They are between ſeven and eight times as long as the whole body: thoſe that are ſmall, are about five-eighths of the length of the whole.

The ſmall inteſtines are called, 1. the *Duodenum*; 2. the *Jejunum*; and, 3. the *Ileum*.

Thoſe that are large, are called, 1. the *Cæcum*; 2. the *Colon*; and 3. the *Rectum*.

The inteſtines have four coats:—The *firſt*, or outermoſt, is a membrane called the *Peritoneum*—the *ſecond*, is of a muſcular kind—the *third*, is nervous, or cellular—and the *fourth*, is the villous, or ſhaggy. This laſt is the inner coat, in which the arteries terminate, and the veins begin. The glands of the inteſtines are ſuppoſed to be lodged in the third coat.

The uſe of the inteſtines is to complete digeſtion, to ſtrain off the chyle, and carry off the fæces in a regular manner; all of which are performed by the periſtalic motion cauſed by the muſcular coat.

The periſtalic motion is not conſtant; but takes place when the bowels are ſtimulated by their contents. The action of the lungs on the diaphragm, and that of the abdominal veſſels, cauſes the ſtomach and inteſtines to diſcharge their contents, by the aſſiſtance of the chyle, bile, rarefied air, &c.

Anatomiſts

Anatomiſts divide the body into three cavities, called bellies; as, 1. The head, or upper belly; 2. The breaſt, or middle belly; and, 3. The *abdomen*, or lower belly.

The belly is divided, on the outſide, into four regions; as,

1. The *epigaſtric*—This reaches from the pit of the ſtomach to the imaginary line above the navel.

2. The *umbelical*—This is the middle external region on the fore part, &c.

3. The *hypogaſtric*—This is the lower fore part of the belly.

4. The *Lumbaris*—This extends from the loweſt ribs on each ſide, to the laſt *vertebra* of the back.

The internal regions contain the thorax, wind-pipe, heart, liver, gall-bladder, diaphragm, ſpleen, veins, arteries, caul, inteſtines, kidneys, myſentery, pancreas, urinary bladder, ſeminal veſſels, &c.

III. *Of* ANGEIOLOGY; *or, A Deſcription of the Veins and Arteries.*

THERE are but two Arteries, *viz.* the *Pulmonic*, and *Aorta*, or *Arteria magna*. But from theſe a number of branches proceed, which have different names, according to their ſituations in the human frame. Their extremities are ſo very ſmall, that they cannot be diſcerned with the naked eye. Theſe extremities end in the veins and lymphatic veſſels.

The

The *aorta* proceeds, with a ſingle trunk, from the left ventricle of the heart; and at its beginning, reflects back two branches called the *coronary arteries*, which are diſtributed into the ſubſtance of the heart and its auricles. The *aorta* thence runs a little obliquely to the right, then turns to the left, forming a ſemi-circle. From the upper part of this, which is called the *aorta aſcendens*, ariſes three branches. The trunk continued from the *aorta*, is called the *aorta deſcendens*, and deſcends through the *thorax* and *abdomen*, towards the *os ſacrum*.

The three branches of the great *aorta* are called, 1. The right ſubclavian;—2. Left ditto;—and, 3. The left, caroted.

The pulmonary artery ariſes from the left ventricle of the heart; divides into two branches, one on each lobe of the lungs; and being ſubdivided again and again into ſmaller branches, they are diſtributed into every part of the lungs.

Some ſay that the arteries have five coats; as, the *vaſculous*, *cellulous*, *tendinous*, *muſculous*, and *nervous*. Others ſuppoſe they have but three in a human body, though thoſe of an ox actually have five. The names of the numerous branches I ſhall not mention.

Theſe veſſels are ſubject to inflammations, ulcers, polypuſes, aneuriſms, oſſification, &c.

The uſe of the arteries is to convey the blood from the heart to all the extremities of the body. They have two motions: the one is called *diaſtole*, and the other *ſyſtole*, that is, a dilation and a contraction.

The

The veins are thin, ramifying, elaſtic tubes; which ariſe from the extremity of the body, and terminate in the heart or liver: They begin where the arteries end. Their coats are the ſame with thoſe of the arteries, only they are thinner.

There are three kinds of veins, *viz.* the *vena cava*, the *pulmonary* veins, and the *vena portæ*.

Their uſe is to return the blood from the arteries to the heart. In general, they are called by the ſame names as the arteries they accompany.

IV. *Of* NEUROLOGY; *or, a Deſcription of the Nerves.*

IN deſcribing the Nerves, I ſhall mention,

1. That they are round, white, ſmooth bodies, like a cord; being the productions of the brain, and the organs of ſenſe and motion.

2. That they are continuations of the medullary ſubſtance of the brain; and, like the ſame, have a great number of blood-veſſels diſperſed about them.

3. That they receive their ſtrength from the membranes, by which they are ſurrounded.

4. That they have two coats, one from the *pia mater*, and the other from the *dura mater*.

5. That from the head there proceeds 10 pair of nerves, and from the ſpinal marrow 24, making 68 in the whole. Some, however, ſay there are more; but be that as it may, they ſpread into branches, and are diſperſed over the whole body.

6. That

6. That thoſe which ſubſerve the vital functions, ariſe from the *cerebellum*;—thoſe ſubſervient to the ſenſes, proceed chiefly from the baſis of the brain;—and thoſe which produce the voluntary motions, are principally from the ſpinal marrow.

I ſaw *Dr. Monro* demonſtrate in the College of Edinburgh, in Scotland, that when a nerve is cut, compreſſed, or deſtroyed, all motion, ſenſation, and nutrition in the part where the nerve is ſituated, is loſt. However, if the principal nerves are not deſtroyed, the parts will recover their health and vigour. But if the *cerebrum*, *cerebellum*, and *medulla ſpinalis*, are either of them wounded, the patient dies inſtantaneouſly. All nerves whoſe poſition are below a wound in the *medulla ſpinalis*, loſe their ſenſe and motion.—A limb may loſe its motion, and yet retain its ſenſation; or it may loſe its ſenſation, and not its motion, for ſenſation will remain ſome time after a member has been amputated; and preſſure will make a part palſaic.

The uſe of the nerves is to convey an exceeding fine fluid from the brain to all the extremities of the body. This fluid is called the Animal Spirits, and is the cauſe of ſenſe and motion.

V. Of Adenology; *or, A Deſcription of the Glands.*

THERE are two kinds of Glands, *viz.* the *ſimple* and the *compound*. The former is called *conglobate* or *lymphatic*, and the latter *conglomerate*.

The ſimple conſiſt of elaſtic, circular fibres, which impel the lympha and chyle into their proper ducts. The compound have each of them a leſſer

leſſer canal, which being continued forms a larger; and they have excretory veſſels, through which ſome particular fluid is to paſs. Thoſe fluids differ from each other, as they conſiſt of ſaliva, bile, the nervous fluid, urine, mucus, ſweat, milk, &c.

The glands have different names, according to their various ſituations in the body and limbs; which are as follows:

1. Of the Brain, The pineal and the pituitary.
2. —— Mouth, — parotid, maxillary, ſublingual, labial, buccal, palatine, amygdalæ; and externally, the epiglottis and pharynx.
3. —— Eyes, — lachrymal.
4. —— Noſe, — pituitary.
5. —— Ears, — ceruminous.
6. —— *Thorax*, — thymus, bronchial, tracheal, arytenoidal, and thyroidæal.
7. —— *Abdomen*, — pancreas, liver, kidneys, ſtomach, inteſtines, &c.
8. —— Secrets, — uterine, ſebaceous, &c.

All theſe are *conglomerate* glands.

The *conglobate* are thoſe of the head, *thorax*, *abdomen*: thoſe of the latter are called gaſtric, hepatic, cyſtic, ſplenic, epiploic, lumbar, myſenteric, iliac, and ſacred.

The conglobate glands are alſo found in the extremities of the body; as the axillary, crural, &c. The uſe of the glands are to ſecrete and ſeparate the fluids, juſt as the kidneys ſeparate the urine from

from the blood; they are of the conglomerate kind: and thoſe of the arm-pits, groins, and myſentery, which perfect the *lympha*, are conglobate, &c.

VI. *Of the* LYMPHÆDUCTS *and* LACTEAL VESSELS.

THE Lymphatic Syſtem conſiſts of the lacteals, lymphatic veſſels, the conglobate glands, and the thoracic duct.

The Lymphæducts are ſlender pellucid tubes, which ariſe from all parts of the body, and permit a thin tranſparent liquor to paſs through them towards the heart, &c.; for the courſe of the lymph, and that of the chyle, is from the circumference of the body to the centre.

The Lymphatics are commonly ſituated cloſe to the large veins and arteries in the extremities of the human frame.

The Lacteals are ſlender pellucid veſſels, diſperſed in great numbers through the myſentery. They begin at the inteſtinal tube; and all of them, with moſt of the lymphatics, open into the thoracic duct, which lies upon the ſpine, and runs up towards the neck, where it commonly opens into the angle between the jugular and the ſubclavin veins of the left ſide; and thus both the chyle and the lymph are mixed with the blood.

The Lacteals are the abſorbents of the bowels, and the Lymphatics are abſorbents in other parts. Hence, as both are abſorbents, and terminate in one

one duct, they are alike; only they are differently ſituated. The coats of theſe veſſels are thin and tranſparent, being much crouded with valves.

Any compreſſion upon the thoracic duct, will bring on an atrophy and death.

The *vaſa chylifera* are called *venæ lactæ*, becauſe their valves are diſpoſed as thoſe of the blood-veins are, and becauſe, like them, they convey their contents from the ſmaller to the larger tubes.

CHAP.

CHAP. XLV.

Of the FLUIDS *in the Human Body; viz. The Chyle, Blood, Bile, Saliva, Tears, Urine, Perſpiration, Pancreatic Juice, Mucus, Milk, Sebaceous Humour, Cerum, Spiritus Animalis, Amygdalæ, Gaſtric Fluid, Lympha, Phlegm, &c. The Vital, Natural, and Animal Functions.*

I. *Of the* CHYLE.

THE chyle is a milky fluid, extracted from what we eat and drink by means of digeſtion. In general, it is a juice inſpiſſated to a middle conſiſtence between moiſt and dry. It ſeems to conſiſt of oil, mucilage, water, a coagulated part, and fixed air.

When the aliment is converted into a fluid ſtate, the oily part mixes with the *ſaliva*, and the juices in the ſtomach and *duodenum*, till it becomes like milk. This mixture is called chyle; and the bile mixing with it in the *duodenum*, aſſiſts in ſeparating the nutritious chyle from the excrementitious part, and the former is conveyed by the lacteals into circulation, to be converted into blood, milk, &c.

When the chyle enters the blood, it does not immediately mix with it, but, in ſome inteſtines, paſſes in a ſeparate ſtate through the whole circu-

lation. I have frequently ſeen it floating upon the ſurface of the blood, when I have bled a patient; and in the laſt ſtage of a *diabetes*, the chyle may be ſeen in the urine.

II. *Of the* Blood.

IT has been demonſtrated by a chymical analyſis, that human blood contains,

1. A fine chalky earth.
2. A portion of fixed air.
3. A quantity of elementary fire.
4. A quantity of water.
5. A quantity of ſea-ſalt.
6. A quantity of acidous gas.
7. A number of volatile particles, like thoſe of ſal-ammoniac.
8. A ſmall quantity of iron, which the loadſtone will attract.

Theſe earthy, airy, igneous, aqueous, ſalineous, acidous, volatile, and ferruginous particles, are derived from the four elements, and thoſe things which nouriſh and ſupport the human frame. Dr. William Harvey, of Kent, in England, diſcovered the circulation of this fluid, in 1657.

The blood is capable of imbibing the infections which float in the air, and alſo the poiſons of minerals, vegetables and animals.

This fluid is contained in the veins and arteries; the arteries convey it from the heart to all the extremities of the body; and the veins convey it back again to the heart.—As mentioned before, it circulates,

circulates, at a medium, with a velocity equal to about fifty-two feet in a minute. But the circulation is quicker in young perſons, than in thoſe that are old: hence ſmall children will live longer in the cold, than the aged. The arteries have a pulſation, like the heart; and when they are cut, the blood will ſpirt out with a very unſteady motion; but when a vein is opened, the blood will run with a ſteady ſtream: but it runs with a greater velocity in the arteries, than in the veins.

Two great arteries, called the *aorta* and the *pulmonic* artery, diſtribute the blood to the extremities of the body. The firſt ariſes from the left ventricle of the heart, and extends itſelf in different branches to the moſt diſtant parts of the human frame. Theſe branches have divers names, as *aorta aſcendens*, *aorta deſcendens*, &c.

The *pulmonic* artery riſes from the left ventricle of the heart, runs upwards to the left *aorta*, and is divided into branches. The blood is returned back to the heart by three ſorts of veins, *viz.* the *vena cava*, the pulmonary veins, and the *vena portæ*. Vid. ANGEIOLOGY, p. 378.

When the blood is taken from a patient, the volatile particles fly off in the form of a ſteam; and what remains, congeals into a trembling maſs. The greateſt part of this maſs is called *craſſamentum*, which is red, and gives that colour to the other parts of the blood. If the *craſſamentum* is ſeparated from the watery part, the remainder becomes inflammable.

The globules of the blood are elaſtic, and they preſerve the heat of the body: a redundancy of them creates acute fevers, inflammations, &c. and their deficiency generates chronic diſorders.

The *ſerum* of the blood is a cruſt that riſes on its ſurface, after it is taken by phlebotomy, &c. The *ſerum* generates nutrition; and the ſecretions that flow from it, moiſten the ſurface of the body, and preſerve the flexibility of the ſolids.

The red colour of the blood is ſuppoſed to be produced by an acid it receives from the air, in the lungs; but Dr. Hunter imputed it chiefly to the degree of its condenſity.

Obſtructions in the circulation of the blood, may be produced by a redundancy or a deficiency in that fluid. Cold water drank when people are hot, a too free uſe of acids and ſpiritous liquors; ſudden frights, grief, terror, fear; the apoplexy, epilepſy, ſpaſmodic aſthma, pleuriſy, peripneumony, convulſions, hyſteric and hypochondriac complaints, with other acute diſtempers, and ſeveral chronic diſorders, will produce obſtructions in the ſanguinary veſſels.

The blood is called the life of all animals; for when it is exhauſted, they die immediately. Coagulations and concretions of the blood ſend off many ramifications to the neighbouring veſſels, which lays a foundation for a number of diſorders. It is dangerous to have too much blood, and alſo to have not enough. When the veins and arteries are too full, bleed; when too empty, live upon a nouriſhing diet.

When the life of a patient is in danger, by a hemorrhage, from a wound or any other cauſe, apply ſtyptics immediately, and preſs the parts together with your hand. If it has not the deſired effect, let a Surgeon take up the vein, or artery, with an arterial needle. A cooling balſamic regimen, and nitrous preparations, will be beneficial.

Some apply the following ſtyptic to the part from whence the hemorrhage proceeds, *viz.* Take of the powder of burnt allum, half a drachm; of the powder of dragons blood, one drachm; mix: and apply it as occaſion may require.

The *volatile flour alkali* has lately been diſcovered at Naples, to be a ſovereign *ſtyptic.*

III. *Of the* BILE.

THE Bile is a thick, yellow, bitter liquor, compoſed of aqueous, ſalineous, roſinous, and ſulphurous parts, which are ſeparated from the venal blood by the liver; it is brought thereto by the *vena porta*, from the ſpleen, ſtomach, inteſtines, and epiploon. It is collected into the gall-bladder, and diſcharged from thence into the lower end of the *duodenum.* Ten parts of the bile, out of twelve, has been found to be water.

It is the leaſt putreſcent of any of the animal fluids, and is capable of diſſolving almoſt all kinds of animal and vegetable ſubſtances. Hence it mixes with the chyle, rouſes the periſtaltic motion of the inteſtines, and completes digeſtion. An exceſſive uſe of acids will produce indigeſtion, by overcoming the qualities of the bile.

The ſtones formed in the gall-bladder, are generated by the coagulation of the bile, and are of an unctuous inflammable nature. They undoubtedly riſe from the too free uſe of acids; but the vegetable acids, uſed with moderation, is a great antidote againſt the putrefaction of the bilious fluid.

When the bile is vitiated, it produces crudities in the *prime vie*, nauſeas, jaundice, flatulencies, coſtiveneſs, cachexy, fevers, conſumptions, dropſies, &c.

The putreſcency of the bile increaſes fevers, and makes them malignant and putrid. Hence it ought to be evacuated by emetics; and antiſeptics ought to be exhibited before it is too late, otherwiſe an end will be put to the life of the patient.

The bilious ducts have different names; as, *Ductus Hepaticus*, *Ductus Cyſticus*, &c.

IV. *Of the* SALIVA.

THIS is an aqueous, ſalineous, oily fluid, which is ſeparated from the blood by the ſalival glands ſituated in the mouth. This fluid is almoſt without taſte or ſmell: It is thin and pellucid, being incapable of being concreted by fire.

By chewing, it flows from the glands, mixes with our food, and promotes digeſtion. In hungry perſons it becomes acrid, penetrating, and reſolvent. Too much ſpitting cauſes a thirſt, loſs of appetite, bad digeſtion, and an atrophy.

V. *Of the* TEARS.

TEARS are an aqueous, ſubtile, limpid, ſalineous fluid, which is ſeparated from the arterial blood

blood by the lachrymal glands; their uſe is to moiſten and deterge the eyes.

VI. *Of the* URINE.

THIS is a fluid ſecreted from the blood by the kidneys, is conveyed by the ureters to the bladder, and from thence diſcharged from the body through the *urethra*. If it is retained too long in the bladder, it turns putrid, and endangers the life of the patient. Sometimes it has paſſed off through the cutaneous pores, when it could not find vent the natural way.

A ſuppreſſion of urine often produces ſpaſms, pains, inflammations, jaundice, loſs of appetite, faintneſs, tremors, cold ſweats, and putrid diſorders.

A total ſuppreſſion is called an *Iſchuria*.

A partial, ——————— *Stranguria*.

If the latter is attended with great heat, *Dyſuria*.

When there is a total ſuppreſſion, it ought to be drawn off with a catheter, if the patient cannot be relieved by bleeding, fomentations, anodynes, diuretics, enemas, nitrous preparations, &c. Sometimes, after bleeding, I have obſerved that emetics and gentle cathartics have been of great ſervice.

Some have pretended, that they could tell, by ſeeing the urine of a patient, what diſorder he was afflicted with, and that they could preſcribe proper remedies without any further knowledge; but this is judged by men of learning and ſkill to be an impoſition, becauſe the ſame kind of urine is not always diſcharged in the ſame diſorders.

I have been credibly informed, that a foreigner who practiſed that way in America, had ſome urine brought to him that had been taken from a ſwine. After he had viewed it for ſome time, he cried out, "By God, dis woman is with child!" This is an evident proof that he was an impoſtor: and I believe it may not be improper to rank ſuch practitioners with the conjurers and fortune-tellers; for, though they may gueſs right ſometimes, yet they may often be deceived, and preſcribe remedies that are very improper for thoſe that need relief.

The urine contains,

1. A microcoſmic ſalt, which is found in no other fluid.
2. A marine ſalt.
3. If diſtilled, it yields only a volatile ſalt; and,
4. An empyreumatic oil; and alſo,
5. A peculiar kind of phoſphorus.
6. A quantity of water, &c.

VII. *Of the Perſpiration.*

PERSPIRATION is a ſteaming, or ſweating, through the cutaneous pores; and the qualities of this fluid are analogous to thoſe of the urine. Inſenſible perſpiration is the greateſt of all evacuations in hot weather; but that of urine exceeds it in winter. The perſpiration cleanſes the blood, by carrying off its ſalineous particles, to ſupple the ſkin, and preſerve the body from various maladies. An obſtructed perſpiration produces fevers, pleuriſies, peripneumonies, arthretic complaints, violent pains, diſeaſes of the head, breaſt, &c. It increaſes

the impure humours, and generates corruption and putrefaction.

VIII. *Of the* PANCREATIC JUICE.

This is an aqueous, limpid, viſcous fluid, ſeparated from the arterial blood by the pancreas, and conveyed by the pancreatic duct to the *duodenum*. It is diſcharged with the bile through the *ductus choledocus*. Its uſe is to moiſten and diſſolve the aliment, to mix with and ſoften the bile, and to render the chyle fit for its entrance into the lacteal veins.

IX. *Of the* MUCUS.

THIS is a mucilaginous fluid, ſeparated from the blood by the glands that are ſeated in the pituitary membrane which covers the internal parts of the noſe. Its uſe is to moiſten and preſerve the inward parts of the noſtrils from being injured by the air.

Mucus is alſo a covering for the ſurface of all the membranes in the body, ſuch as the ſkin, internal membrane of the mouth, lungs, inteſtines, urinary paſſages, &c. It is a compound of coagulable matter and water, which prevents the membranes from being ſtimulated by things which touch them.

X. *Of the* MILK.

THIS is a white fluid, ſeparated from the blood by the glands of the breaſts: it is nothing but the chyle more highly laboured.

By

By a chymical analyſis it has been demonſtrated, that it contains the ſame ſubſtances that are found in the vegetable kingdom. Its uſe is to nouriſh infants, &c.

Milk differs in degrees of goodneſs, in the following order, *viz.* 1. Woman's is the beſt — 2. Aſs's the next beſt — 3. Mare's — 4. Goat's — 5. Sheep's — 6. Cow's is the worſt, becauſe it is the hardeſt to digeſt. The milk of animals which feed on green herbs, is more diluting than that of thoſe which feed upon dry.

When milk becomes cold, it loſes its excellent qualities, like moſt other animal fluids, and they cannot be reſtored by heat. Boiled milk is improper for weakly perſons, and thoſe who have weak ſtomachs.

If milk diſagrees with a patient, a tea-ſpoonful of the ſpirits of hartſhorn may be put into every pint, which will make it agreeable. Milk is not good in fevers, but it is an antidote againſt poiſons.

New milk whey is cooling, diluting, and aperient: it is good for coſtive patients, and in acute rheumatiſms, and for other diſorders when the humours are impure, being a general promoter of the natural excretions.

XI. *Of the* Sebaceous Humour.

THE Sebaceous Humour is an unctious, thick, viſcous matter, which is filtered by the ſebaceous glands, and depoſited in ſmall bags, where it appears in black ſpots, and may be ſqueezed out in the

the ſhape of little worms.—This humour forms the ſmall ſcales which appear upon the ſkin.

Its uſe is to defend the ſkin from being injured by the action of the ſalts, and to render it ſmooth and poliſhed.

XII. *Of the* CERUMEN AURIS.

THIS is called Ear Wax. It is ſeparated from the glands in the ear; is moiſt at firſt, but grows harder by lying. It is bitter and viſcid, and has qualities much like thoſe of the bile.

Sometimes it cauſes deafneſs, by growing hard; but warm water will diſſolve it, and often cure the diſorder.—This has been found to be a better remedy than any hitherto diſcovered.

The ear-wax prevents inſects from hurting the *membrana tympani*.

XIII. *Of the* SPIRITUS ANIMALIS.

THE *Spiritus Animalis*, or Animal Spirits, have been ſuppoſed to conſiſt of a very thin liquor, conveyed from the blood to the external or cortical part of the brain, where it is exalted into ſpirit; and from thence conducted through the *medullar* ſubſtance of the brain, by the *corpus calloſum*, and *medulla oblongata*, into the nerves, and in them performs all the actions of ſenſe and motion. But the nerves are conductors which not only carry theſe ſpirits from the head, but return them back again.

Any fine volatile ſubſtance which exhales from bodies by a given degree of heat, is called *ſpirit*: hence,

hence, by a ſort of an imaginary analogy, the nervous fluid has been called Spirit, and is generally termed Animal Spirit.

The ſpirit in the human body is ſpoken of under different characters; as thoſe of natural, vital, and animal.

The firſt preſides over digeſtion, the elaboration of the chyle, and all the natural actions—The ſecond, over the motion of the heart and lungs, or the vital actions;—and the third, over the animal actions; as, ſenſation, voluntary motion, &c.

XIV. *Of the* AMYGDALÆ.

THE *Amygdalæ*, or Almonds, are a glandulous ſubſtance, like two kernels, on each ſide of the *uvula*, at the root of the tongue. They are called a thick humour, through which a juice is filtered that moiſtens the inſide of the *œſophagus*, and other parts, which facilitates ſwallowing, creates an appetite, and promotes digeſtion. This liquor is analogous to that of *ſaliva*.

XV. *Of the* GASTRIC FLUID.

THIS is the juice of the ſtomach, being a thin pellucid liquor, which diſtils from certain glands, for the dilution of food.

XVI. *Of the* LYMPHA.

THIS is a pellucid, inſipid, pure liquor; the more ſubtile parts of which afford the matter of the fluid of the brain, ſpinal marrow, nerves, and alſo the ſeminal fluid.

The

The gelatinous parts of this fluid nouriſh all the ſolids; and its finer aqueous parts are, through the lymphatic veſſels, by means of the valves and the conglobate glands, again conveyed to the heart, where being again united with the blood, it is with it conveyed to all the parts of the body. When eight ounces of blood have been diſtilled over a gentle heat, ſeven ounces of lymph have aroſe by the diſtillation.

XVII. *Of the* PHLEGM.

PHLEGM is a ſlimy excrement of the blood, often raiſed by taking cold, or too much nitrous air. It is alſo an inflammation.

XVIII. *Of* FAT, *or* ANIMAL OIL.

FAT is an animal oil: It is an unctuous ſulphureous fluid, contained in that part of the cellular membrane called *membrana adipoſa*. But how it is ſeparated from the blood, is not certainly known.

Fat is compoſed of a little earth, elementary fire, acid ſalt, volatile alkaline ſalt, and water. In human fat, and the ſuet of beaſts that chew the cud, there is a large quantity of inflammable oil, and an acid empyreumatic liquor.

By profuſe ſweating, the fat is melted down, and carried off through the cutaneous pores, which greatly weakens the patient.

The human fat does not become fluid when Farenheit's thermometer riſes to 90 degrees; but when

when it begins to putrify, a ſmall degree of warmth will make it run into oil.

The uſe of this fluid is, 1. to temperate the acrimony of the ſalts in the blood—2. to fill up the empty ſpaces between the muſcles, which beautifies the formation of the body—3. to render the ſkin flexible, ſmooth and ſoft—4. to moiſten and ſoften the fleſhy tendinous parts—and, 5. to nouriſh the animal at certain times.

Fats and animal oils are good to relax the parts to which they are applied, and to ſtop perſpiration. In the preſent practice in London, I underſtand that three kinds are chiefly uſed, *viz.* That of vipers, hogs-lard, and mutton ſuet.

Fats are of an emollient quality, and good in divers kinds of ointments, as the *unguentum cæruleum mitius*, *ung. cæruleum fortius*, *unguentum* vulgo, *inimentum arcæi. ung. nervinum*, &c.

Animal fats are not ſoluble in the ſpirits of wine rectified, nor in water. If they are ſcented with eſſential oils, the oils may be totally extracted by digeſtion in the rectified ſpirits of wine; and by the ſame means alſo, in a leſſer degree, by water. By ſuch operations, fats that are old may be freed from their ill ſmell, and made ſweet.

The whale affords more oil than any creature belonging to the animal kingdom. It has been ſaid, that ſome of them will yield 120 barrels.

Of

Of the Vital, Natural, and Animal Functions.

HAVING given a ſhort deſcription of the greateſt part of the Solids and Fluids in the human body; I ſhall now proceed to ſay ſomething further concerning their action and re-action on each other, or the vital, natural, and animal functions. Theſe I ſhall deſcribe in their order. And,

I. *Of the* VITAL FUNCTIONS.

THESE conſiſt of the circulation of the blood, the action of the brain, and the reſpiration.

On the action and re-action of the ſolids and fluids, the vital functions depend; for, the circulation of the blood from the heart, through the arteries, to the extremities of the body, and its return to the ſame again by the veins, produces a motion which is cauſed chiefly by the dilation and contraction of this organ; and whenever this motion totally ceaſes, life is come to an end.

The action of the brain ſeparates a very ſubtile fluid from the blood, called Animal Spirits, which are conveyed by the nerves into all parts of the body. They paſs in an inſtant, at the command of the will, from the brain to the extremities of the body, and back again with the ſame velocity. The brain is the reſervoir of this fluid, by which the ſoul has a perception of objects, and performs all the bodily actions.

Reſpiration

Reſpiration is compoſed of two motions, called, Inſpiration, and Expiration: by the former, the air is received into the lungs; and by the latter, it is returned back again. The air is heated by entering the breaſt; and if the weather is cold, it will be condenſed, and appear in the form of a vapour, as it returns into the ſurrounding atmoſphere.

Reſpiration is the cauſe of ſpeaking, laughing, ſighing, coughing, ſneezing, yawning, ſucking, &c.

II. *Of the* Natural Functions.

THE Natural Functions are, manducation, deglutition, digeſtion, nutrition, growth, generation, ſecretion, and evacuation.

Manducation, is the chewing of our food.

Deglutition, is the ſwallowing of the ſame.

Digeſtion, is a change of the aliment into chyle, by its mixing with the bile and the pancreatic juice, and the action of the inteſtines.

Nutrition, is the repairing of the continual loſs which the different parts of the body ſuſtain; for life is deſtructive of itſelf, as its very offices cauſe a conſtant waſte. The motion of the parts of the human frame, the friction of theſe parts upon one another, and eſpecially the action of the air, would deſtroy the body entirely, if the loſs was not repaired by materials of the ſame kind of thoſe carried off by evacuations.

Growth, is an increaſe of the body by the nutritious juices.

Generation,

Generation, is the production of any thing in a natural way, which was not in being before.

Secretion, called Excretion, is the ſeparation of ſome fluid mixed with the blood, by means of the glands; or, in other words, it may be called the ſeparation of one fluid from another.

Evacuation, is produced by the periſtaltic motion of the bowels, emetics, cathartics, diuretics, diaphoretics, &c.

III. *Of the* ANIMAL FUNCTIONS.

THE Animal Functions are the muſcular motions and voluntary actions of the body: they conſtitute the ſenſes of feeling, taſting, ſmelling, ſeeing, hearing, perceiving, reaſoning, imagining, remembering, judging, with all the affections of the mind.

The muſcles are the organs of the voluntary motions: they act chiefly by contracting or ſhortening the fleſhy fibres. This contraction, by drawing the tendons or tails of the muſcles, to which the moveable bones are connected, moves the ſolid parts; and by leſſening the cavities of certain hollow muſcles, ſuch as the heart, inteſtines, and other veſſels, it cauſes the motion of the fluids.

The inſtruments of the involuntary motions, are the nervous and muſculous or fleſhy tunics, compoſed of fibres: they conſiſt of all kinds of veſſels, through which the fluids circulate.

The involuntary motions are thoſe which are produced without the conſent of the mind; ſuch

as, the beating of the heart, pulſation of the arteries, convulſions, &c.

Feeling is produced by the application of bodies to the nervous *papillulæ* of the ſkin; and from hence proceed the ſenſation of heat, cold, moiſture, dryneſs, ſoftneſs, hardneſs, roughneſs, tickling, pain, &c.

Taſting proceeds from the touching of things to the *papillulæ* of our tongues: hence we know whether a thing is bitter, ſweet, ſalt, or ſour, &c.

Smelling ariſes from the entrance of exhalations into our noſtrils, and their ſtriking a nervous membrane which covers the internal parts of the noſe: hence we diſtinguiſh one thing from another by the ſmell.

Seeing is performed by the expanded membrane of the optic nerve, called the *retina*. The rays of light which proceed from all points of external objects, paſs through the tranſparent part of the eye; and after having undergone various refractions in the *aqueous*, *vitrous* and *cryſtalline humours*, they fall upon the *retina*, which is the immediate organ of ſight, and forms the image of the object.

Hearing proceeds from the different agitations of the air cauſed by ſounding bodies. Theſe agitations paſs through the external part of the ear to the *tympanum* or drum, to the air contained in the turnings and windings of this organ, 'till it is communicated to the interior membrane of the auditory nerve.

Perceiving is a clear and diſtinct apprehenſion of objects: it is produced by the extenſion of the nervous membranes.

Reaſoning is an arguing upon a ſubject, in a juſt, right, and rational manner: this is produced by a perfect underſtanding ariſing from the organs of the ſenſes being in good repair.

Imagining is a faculty by which we picture bodily ſubſtances in our minds, as though we actually ſaw them with our eyes; being conceit, fancy, thought, &c. It may be ſometimes true, and ſometimes falſe.

Remembering is a calling to mind, or having in one's memory, ſomething paſt, preſent, or to come.

Judging is the trying of cauſes, the making up of a judgment, and the determination of things in one's mind.

As to the *affections* of the mind, they have already been mentioned. Vid. p. 212.

Having thus deſcribed the vital, natural, and animal functions, I will juſt obſerve, that Anatomiſts do not agree in ſome things, and therefore frequently contradict one another, owing no doubt to new diſcoveries that have been made in theſe latter days. I have endeavoured to calculate the preceding account of the Solids and Fluids according to the lateſt diſcoveries; and hope that what I have written will prove profitable to thoſe who may be inclined to obtain a general idea of the conſtruction of the human frame, which, by the the *Divine Artificer*, is fearfully and wonderfully made!

CHAP. XLVI.

Of AGRICULTURE—*Thoughts on Vegetation, and of the Riſe of Sap in Trees, Plants, and Herbs —The Farmer and Gardener's Calendar.*

AGRICULTURE is the Art of Huſbandry, and conſiſts in the improving of lands in the beſt manner, in order to make them produce large crops of grain, hay, &c.

GARDENING conſiſts in the dreſſing of ground, and in the raiſing of a variety of plants and flowers, &c.

The Art of Gardening, according to the Scriptures, is almoſt as old as the creation; for the LORD GOD, having planted a garden eaſtward of Eden, did put Adam into it, to dreſs and keep it. *Vid.* Gen. ii. 8. 15. But, according to Chronology, this Art was invented by Queen Elizabeth, who reigned in England about the year 1559. —It alſo appears by the Scriptures, that Agriculture is nearly as old as Gardening; for Cain was a tiller of the ground, *Vid.* Gen. iv. 2. But Chronology tells us, that it was invented by Triptolemy, about 1600 years before Chriſt.

Theſe excellent Arts are very beneficial to mankind, as a great part of our food and raiment is derived from them; and the King himſelf is ſerved by the field. Were the farms and gardens to lie uncultivated, a great part of the people would periſh with famine. Hence nothing can be of greater

greater importance as to our temporal felicity, than the cultivation and improvement of theſe uſeful Arts.

I ſhall treat, in the *firſt* place, of Vegetation; and *ſecondly*, give ſome important directions concerning the management of farms and gardens in the middle governments in North-America; which may be of great ſervice in other States, providing a proper allowance ſhall be made for the difference of climates. Hence, in thoſe which are colder than the middle governments, directions for March, April, May, &c. muſt be obſerved later in the ſeaſon, but earlier in thoſe which are hotter.

I. *Of* VEGETATION.

VEGETABLES proceed from ſeeds of the ſame ſpecies; though ſome have been otherwiſe minded, becauſe they have ſuppoſed that ſome plants have no ſeed. It is true, indeed, that ſome are male, and others female; as, *filix mas*, male fern; *filix fœmina*, female fern, &c. The female produces fruit and ſeeds, but not the male. Some plants bear flowers, which never bear any fruit; and others bear fruit, without flowers.

Plants are diſtributed into 28 claſſes, by Ray; as,

1. Funguſes, which ſeem to have neither flowers nor ſeed.

2. Submarine plants; as, ſponges, &c.

3. Moſſes.

4. Capillary herbs—Theſe have no main ſtock or ſtem, but their leaves ariſe immediately from their roots; as, harts tongue, &c.

5. Herbs with an imperfect ſtaminous flower; as, jointed glaſs-wort, marſh-ſamphire, &c.

6. Herbs with a compound flower, full of a milky ſubſtance; ſuch as, the different kinds of wild lettuce, &c.

7. Herbs not milky, with compound flowers, and a downy ſeed; as, colts-foot, &c.

8. Herbs with a compound diſcoride flower, with ſeeds not downy; as, corn-marigold, common ox-eye, &c.

9. Herbs with a flower compounded of fiſtular *floſculi*, or capitated herbs; as, *carduus*, different thiſtles, baſtard ſaffron, &c.

10. Herbs with a ſimple perfect flower, with naked ſolitary ſeeds, or ſingle ſeeds in ſingle flowers; as, ſmall and wild valerian, corn ſallad, &c.

11. Umbelliferous herbs, whoſe flowers grow on the top of their ſtalks; after which, grows two naked ſeeds, which are joined together in each flower; as, cow parſnips, &c.

12. Stellated herbs, whoſe leaves encircle their ſtalks by intervals; as, croſs-wort, wild madder, &c.

13. Rough-leaved herbs—Theſe have their leaves ſet upon the ſtalks in no proper order; as, bugloſs, cowſlips, great hounds-tongue, &c.

14. *Suffrutices* and verticillated herbs—Theſe have two leaves on the ſtalk, placed one againſt the other, and every flower produces four ſeeds; as, the common mother thyme.

15. Polyſpermous herbs, with naked ſeeds—Theſe have more than four ſeeds in a flower; ſuch as, the leſſer celandine, &c.

16. Bacciferous herbs—Theſe are thoſe whoſe fruit,

fruit, when ripe, are clothed with a thin membrane, containing a ſoft moiſt pulp. Theſe fruits are called berries; as, cloud berries, bramble berries, &c.

17. Multiſiliquous or corniculated herbs—Each flower of this kind produces two pods, ſuch as periwinkles, houſe-leek, &c.

18. Herbs with a ſingle dry fruit, and a monopetalous flower; as, common henbane, marſh gentian, &c.

19. Vaſculiferous herbs, with a dipetalous and tritaplous flower; as, the enchanter's night-ſhade, water-wort, or ſtar, headed water chickweed, &c.

20. The ſame as the former.

21. Terapetalous, ſiliquous, and ſiliculous herbs; as, the great ſea ſtock gilliflower, &c.

22. Vaſculiferous herbs, anomalous, with a tetrapetalous flower; as, the wild poppy, red poppy or corn-roſe, &c.

23. Leguminous herbs, or with a papilionaceous flower—Theſe flowers reſemble the expanded wings of a butterfly; ſuch as, the different kinds of peaſe, &c.

24. Pentapetalous vaſculiferous herbs—Theſe have two leaves ſet againſt each other on the ſtalk; as, maiden pinks, common pinks, Deptford pinks, &c.

25. Hexapetalous, and pentapetalous, vaſculiferous herbs; as, the ſmall hedge hyſſop, water lily, &c.

26. Herbs with bulbous roots; as, different kinds of garlics, &c.

27. Culmiferous graſs-leaved herbs, with an imperfect flower; as, ſpiked graſs, dog graſs, &c.

28. Graſs-leaved herbs, not culmiferous, with

an imperfect or ſtaminous flower; as, the great vernal cyprus graſs, &c.

Trees and Shrubs are alſo differently diſtributed into claſſes.

Thoſe of an apetalous flower at a diſtance from the fruit, are,

1. The nuciferous; as, the walnut-tree, &c.

2. The coniferous; the female or yew-leaved fir-tree.

3. The bacciferous; the juniper-tree, &c.

4. The lanigerous; as, the ſeveral kinds of poplar trees, &c.

5. The foliaceous veſſels; the horn-beam, &c.

Of Trees and Shrubs with the Fruit contiguous to the Petaloid Flower.

THOSE that have the flowers ſeated upon the top of the fruit, are ſuch as pomiferous and bacciferous trees; as, the apple, pear, and crab trees, &c.; the apple-roſe, currants, &c.

Trees whoſe flowers adhere to the bottom of the fruit, which is moiſt when ripe, is called *pruniferous*. Of this kind are the common, black, and wild cherry-trees, and the like.

Trees with the flowers growing at the bottom of the fruit, which is dry when ripe, are the bladder nut-tree, the common elm, wych, hazel, &c.

Having given the preceding ſhort deſcription of the different genus's of plants, &c. let us obſerve,

1. That every vegetable muſt ſpring from ſeeds of the ſame ſpecies, though they may be very ſmall.

2. That ſeeds may be carried to a great diſtance from the places where they grew, by the wind, and

and by the birds and beaſts, and thus be planted in an uncultivated wilderneſs.

3. That ſome ſeeds may lie 40 or 50 years in a dry place, and afterwards ſpring up, if moiſture gets to them.

4. That the vegetable productions derive the greateſt part of their weight from the moiſture of the earth, and the circumambient air, is evident, becauſe the growth of a willow in 200lb. of earth, gained, in five years, 164lb. 3 oz. and only imbibed two ounces of that element. Hence air, fire and water, muſt make the other part of the bulk.

5. That when a ſeed is ſown, the parts thereof is in *embryo*. It begins to vegetate by the heat of the ſun, and the ſurrounding moiſture; every part ſwells, the external part unfolds and dilates, till at laſt ſprouts come forth out of their native bed: one or more of theſe ſprouts run downward, and are called roots; and one or more of them grow upward, and produce ſtalks, or a tree, according to the nature of the ſeed.

6. That the bark of the roots, being ſpungy, imbibes and ſucks up moiſture from the earth, which impregnates the vegetable with thoſe principles on which its life and growth depends. This moiſture abounds with oil, alkaline ſalts, alkaline earth, &c.

7. That this moiſture is called ſap; which being diſtributed through the roots, ſupplies their organical parts with thoſe principles of nutrition which every one requires. Hence they grow larger, and more ſolid, as their age advances.

8. When the roots are thus formed, with their organs

organs of vegetation, they draw from the earth, through their veſſels, proper vegetable juices, which they communicate to the ſeed plant, and thereby cauſe it to unfold all its blades, and ſhoot forth branches, buds, leaves, flowers, and ſeeds, from the different parts of its ſtalk or trunk.

9. The ſap aſcends the firſt year of the growth of the plant, by the veſſels of the pith; after which the pith grows dry, and remains ſo. Afterwards the ſap riſes in the wood; and laſtly, in the bark.

10. That the ſap aſcends, in the ſpring, to all the extremities of a tree or plant, and deſcends into the roots in the autumn. Though ſome will not allow that the ſap hath any circulation at all; but I am ſure they are miſtaken, becauſe I have often ſeen maple-trees tapped, which have yielded a barrel of juice; and how could the juice run out if it had no circulation?

11. Some have ſuppoſed, that the ſap riſes every month in the year; and I have thought, that the moon may have ſome influence on the vegetable fluids, at the time of the ſpring tides, as well as upon the waters of the ſea, and the atmoſphere. But, in cold countries, where the trees are froze hard in the winter, it is not probable, that whilſt they are in that condition, the ſap can have much circulation when the ſpring-tides happen.

12. The ſap in ſome vegetables has a ſlow circulation, which generates and makes it appear like milk, and is of an oily balſamic quality. But when the ſap is ſtrained more freely through each organical part, it appears like clear water. All vegetables perſpire in a greater or leſſer degree, in warm

warm weather; the heat and air within them tends to generate a kind of fermentation, which keeps the fluids in motion. Many vegetables emit an effluvia, called *odours*, which conſiſts of very fine inviſible particles, that fly off in all directions, and being received into our noſtrils, produce the ſenſation of ſmell.

Vegetables cannot exiſt without air and nouriſhment, any more than animals. Their greenneſs is attributed to a portion of iron imbibed from the earth, &c.

The Farmer and Gardener's CALENDAR.

JANUARY.

1. CUT your wood in the firſt quarter of the moon; improve the ſledding, and get a plenty of fuel for the following year.

2. See that the vermin do not deſtroy your grain and vegetables.

3. Cut timber for building, fencing, &c. in the laſt quarter of the moon, to prevent its rotting.

4. Let not your horſes ſtand in the cold, when they have been heated with exerciſe; and keep your cattle warm and clean, and ſee that they have water in ſeaſon.

5. Sweep your chimnies often, to prevent your houſes from taking fire.

6. Go to bed in ſeaſon, and riſe early: this will ſave your candles and fire-wood.

FEBRUARY.

1. PRUNE your orchards and foreſts.

2. Sow

2. Sow peaſe, if the weather will permit.

3. Get your tools ready to do your ſpring work.

4. Look over your garden-ſeeds, and ſee that they are not injured by the moiſture, or by the froſt.

5. Cut timber for building in the old of the moon, if you did not cut enough laſt month.

6. When the ſnow is gone, put your ſleighs and ſleds, with their tackling, into a tight and dry place, to prevent their being damaged by the rain.

7. Take good care of your ſheep and lambs.

8. Plow your graſs land, if the froſt is out of the ground; the clods will rot ſooner than at any other time in the year.

MARCH.

1. REPAIR your fences.

2. Graft or inoculate young trees, and ſet them out for an orchard.

3. Sow tobacco, cabbage, parſnip, carrot, onion ſeeds, &c.

4. Plow your ground for your flax, wheat, rye, oats, and barley.

5. Plant potatoes, Indian corn, peaſe, &c. with ſuch other vegetables as may be wanted before fall, early in the ſpring; thoſe for winter may be planted later.

APRIL.

1. SOW your flax-ſeed, and ſpring grain, as early as poſſible.

2. Dung and plow your ground, for the planting of Indian corn, potatoes, beans, pompkins, melons, cucumbers, &c.

3. Plant more Indian corn, potatoes, &c.

4. Look well to your garden, ſow ſeeds, and tranſplant roots, &c.

MAY.

1. PLANT corn, potatoes, beans, peaſe, lettice, roſemary, lavendar, thyme, with all kinds of ſeeds that were not planted or ſowed in February, March, and April.

2. Weed your garden, hoe your corn, ſet out your cabbage and tobacco plants, and water your new-grafted trees, if the weather is dry.

3. Waſh and ſhear your ſheep, hive your bees when they ſwarm, and ſee that your vegetables are not deſtroyed by the cattle, or by inſects.

4. Bleed the cattle you intend to fatten.

JUNE.

1. HOE Indian corn, weed your garden, and kill black flies, worms and ſpiders, which devour your plants, by the fumes of tobacco, conducted to thoſe vegetables through ſome proper pipe, or tube.

2. Plant Indian corn, beans, peaſe, melons, and cucumbers, for uſe in the fall.

3. Water your plants in the evening, or early in the morning, if the weather is dry. Watch your bees, leſt they ſwarm, and fly away, for the want of a new hive.

4. Begin to mow graſs, as ſoon as it is ripe, or in the bloom; rake and cock your hay every evening before the dew falls, ſpread it out the next morning, and cart it into your barn as ſoon as it is fit; but let it not be dried too much. Keep your barn-doors ſhut tight, to prevent the ingreſs

of

of the air, for a free admiſſion of that element will cauſe the hay to generate heat by fermentation, and make it muſty, and ſometimes cauſe it to take fire; but if it is kept from the air, it will look green, and have an agreeable flavour the next year.

5. Plow the land you deſign to ſow with winter grain. The graſs ſhould be plowed in; and the more there is of it, the more will the ground be enriched.

6. Gather cherries, currants, ſtrawberries, gooſeberries, &c.

JULY.

1. CONTINUE to get in your hay; let not your grain ſtand too long, leſt it ſhould waſte by the blaſt, but get it into your barns in ſeaſon.

2. Hill your Indian corn, and ſow peaſe and turnips for the fall and winter.

3. Turn bulls to ſtore heifers; lay up herbs for winter, when they are in their bloom.

4. Deſtroy the weeds in your gardens, and water thoſe vegetables that have been tranſplanted.

5. Gather and lay up all kinds of ſeeds when they are ripe.

6. Suffer not yourſelf, or any man or beaſt under your care, to drink cold liquor when you or they are hot, leſt death enſue.

AUGUST.

1. REAP or cradle your oats, get in your barley, and pull your flax.

2. Gather ſeeds as they ripen, and herbs for diſtilling and drying.

3. Water your gardens in the evening, if the ſeaſon is dry.

4. When

4. When the weather is cloudy, re-inoculate thoſe trees, where the ſcions are dead, that were inoculated in the ſpring.

5. Make cyder when your apples are ripe, and mow your ſecond crop of graſs as ſoon as it is fit.

6. Cut trees, buſhes, briars, and thiſtles, when the moon is in Leo, or the ſign is in the heart; it is ſaid, that it will kill their roots.

SEPTEMBER.

1. CUT the ſtalks of your Indian corn; bind them in bundles when they are dry, and put them into the barn.

2. Make cyder, pickle cucumbers, gather early apples.

3. Shut up your ſwine to fatten.

4. Deſtroy drone bees.

5. Dig potatoes, and rot your flax, but ſee that it is not rotted too much.

6. Sow winter rye and wheat in the new of the moon; gather your hops.

OCTOBER.

1. GATHER and huſk your Indian corn.

2. Prune and plant fruit and foreſt-trees.

3. Clean out your ditches, drain off all ſtagnant waters, and deſtroy vegetable poiſons, to prevent the generation of malignant diſtempers.

4. Make your winter cyder, and gather winter apples in the old of the moon.

5. Stop the growth of weeds in the garden.

6. Threſh out your garden-ſeeds, and put them in bags, and where they will not be hurt by the froſt.

7. Prune

7. Prune and tranſplant fruit trees. The ſetting out of young orchards is too much neglected where people ſettle upon new lands. It has been ſaid, that a young orchard will produce apples enough in ſeven years, if it is well pruned, for a family, both for cyder and other uſes.

8. Gather cheſnuts, walnuts, hazel-nuts, &c.

NOVEMBER.

1. BLEED your horſes.

2. Houſe your cattle, as the cold weather approaches.

3. Move your bees under a ſhelter, or into a warm place.

4. Continue to plant timber and fruit-trees.

5. Take up your beets, carrots, parſnips, turnips, cabbages, &c.

6. Secure your cellars againſt the froſt, to prevent your potatoes, &c. from being deſtroyed by freezing.

DECEMBER.

1. TAKE good care of your cattle.

2. Threſh out your grain.

3. Break and ſwingle your flax.

4. Grind your tools, and keep them in good order for uſe.

5. Kill your hogs and fat cattle.

6. Take care of your geeſe, turkies, and fowls.

7. Feed your bees, if they have not laid up honey enough to live upon.

8. In long evenings, read Theology, Geography, Hiſtory, and the *American Oracle*, if you pleaſe.—Farewel! May *peace* and *proſperity* crown your *labours!* Amen.

London, April 25, 1791.

CHAP.

CHAP. XLVII.

Of the Revolution of the American Colonies; Declaration of Independence.—Their Alliance with France.—Definitive Treaty of Peace with Great Britain.—Proclamation of Congreſs.—Treaty with Pruſſia.—Preſent Conſtitution, and Character of Gen. Waſhington.

HIS Excellency *Benjamin Franklin, Eſq.* L.L. D. F. R. S. is ſaid to be the prime conductor of the American Revolution; but be that as it may, it appears that the Foreign Powers were fearful that in proceſs of time Great Britain would be too powerful, if her Colonies remained under her Government, and that from hence they aided and aſſiſted in diſmembering thoſe Governments from the Mother Country.

I ſhall not attempt to give a long hiſtory of the war; but only obſerve, that on the 4th of July, 1776; thirteen colonies, viz. New Hampſhire, the Maſſachuſetts, Rhode-Iſland, Connecticut, New York, New Jerſey, Pennſylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia, were declared independent of the Engliſh Crown, by a Congreſs of Delegates, con-

vened at Philadelphia, who had been ſent there by the Legiſlative Aſſemblies in the different Provinces. A terrible war enſued, not only between Great Britain and the Revolted Colonies; but between England, France, Spain, and Holland. It has been ſaid, that the Britiſh loſt upwards of 100,000 men, and that the National Debt was augmented more than 100 millions of pounds ſterling, by the conteſt; ſlaughter and deſolation overſpread the land, in many parts of America; great numbers fell by the ſword; many died of camp diſeaſes, and many towns and villages were laid waſte. How many of the Americans were loſt by this war is unknown to me, but a clergyman, who was a travelling preacher, in the Southern Governments, whilſt the war continued, and not a Loyaliſt, informed me, that the inhabitants of South Carolina were not ſo numerous by 100,000 when the war ended, as they were when it began; but it is thought, that the greateſt part of them died with ſickneſs. A Britiſh Major told me, that more than 50 died in a day, take one day with another, with illneſs, for a long time, at a place where he was ſtationed in that Government. This war involved the Americans in debt, to the amount of 65 millions of dollars, according to a late publication which I have ſeen, as was before obſerved. Gen. Waſhington was Commander in Chief of the American armies during the war, and conducted his military operations with ſuch great ſkill, that at laſt a peace was eſtabliſhed, whereby the Revolted

Colonies

Colonies were not only declared independent by ſome Foreign Powers, but by Great Britain.

For the Benefit of my Readers, I ſhall conclude this chapter, by adding,

1. The Declaration of the American Independence.
2. The Alliance of the States with France.
3. Their Definitive Treaty of Peace with Great Britain.
4. A Proclamation of Congreſs.
5. Their Treaty with Pruſſia.
6. Their preſent Conſtitution, and
7. The character of General Waſhington.

1. IN CONGRESS, *July* 4, 1776.

A DECLARATION *by the Repreſentatives of the United States of America, in General Congreſs aſſembled.*

WHEN, in the courſe of human events, it becomes neceſſary for a people to diſſolve the political baſis which have connected them with another, and to aſſume among the powers of the earth the ſeparate and equal ſtation, to which the laws of nature, and of Nature's God entitle them, a decent reſpect to the opinions of mankind requires that they ſhould declare the cauſes which impel them to the ſeparation.

We hold theſe truths to be ſelf-evident—that all men are created equal; that they are endowed by

their Creator with certain unalienable rights; that among theſe are life, liberty, and the purſuit of happineſs. That to ſecure thoſe rights governments are inſtituted among men, deriving their juſt powers from the conſent of the governed; and whenever any form of government becomes deſtructive of theſe ends, it is the right of the people to alter and aboliſh it, and to inſtitute a new government, laying its foundation on ſuch principles, and organizing its powers in ſuch form as to them ſhall ſeem moſt likely to effect their ſafety and happineſs.—Prudence, indeed, will dictate that governments long eſtabliſhed, ſhould not be changed for light and tranſient cauſes, and accordingly all experience hath ſhewn, that mankind are more diſpoſed to ſuffer, while evils are ſufferable, than to right themſelves, by aboliſhing the forms to which they are accuſtomed; but, when a long train of abuſes and uſurpations, purſuing invariably the ſame object, evinces the deſign to reduce them under abſolute deſpotiſm, it is their right, it is their duty to throw off ſuch government, and to provide new guards for their future ſecurity. Such has been the patient ſufferance of theſe Colonies, and ſuch is now the neceſſity which conſtrains them to alter their former ſyſtems of government. The hiſtory of the preſent ——— of ——— is a hiſtory of repeated injuries and uſurpations, all having in direct object the eſtabliſhment of an abſolute tyranny over theſe ſtates. To prove this, let facts be ſubmitted to a candid world.

He

He has refuſed his aſſent to laws the moſt wholeſome and neceſſary for the public good.

He has forbidden his governors to paſs laws of immediate and preſſing importance, unleſs ſuſpended in their operation till his aſſent ſhould be obtained; and when ſo ſuſpended, he has utterly neglected to attend to them.

He has refuſed to paſs other laws for the accommodation of large diſtricts of people, unleſs thoſe people would relinquiſh the right of repreſentation in the legiſlature, a right ineſtimable to them, and formidable to Tyrants only.

He has called together legiſlative bodies at places unuſual, unconformable and diſtant from the depoſitory of the public records, for the ſole purpoſe of fatiguing them into compliance with his meaſures.

He has diſſolved repreſentative houſes repeatedly, for oppoſing, with manly firmneſs, his invaſions on the rights of the people.

He has refuſed a long time after ſuch diſſolution to cauſe others to be erected, whereby the legiſlative powers, incapable of annihilation, have returned to the people at large for their exerciſe, the ſtate remaining, in the mean time, expoſed to all the dangers of invaſion fromwithout, and convulſions within.

He has endeavoured to prevent the population of theſe ſtates; for that purpoſe obſtructing the laws for naturalization of foreigners, refuſing to paſs others to encourage their migration hither,

and raiſing the conditions of new appropriated lands.

He has obſtructed the adminiſtration of juſtice, by refuſing his aſſent to laws for eſtabliſhing judiciary powers.

He has made judges dependent on his will alone for the tenure of their offices, and the amount and payment of their ſalaries.

He has erected a multitude of new offices, and ſent hither ſwarms of officers to harraſs our people, and eat out their ſubſiſtence.

He has kept amongſt us, in times of peace, ſtanding armies, without the conſent of our legiſlature.

He has affected to render the military independent of, and ſuperior to the civil power.

He has combined with others to ſubject us to a juriſdiction foreign to our conſtitution, and unacknowledged by our laws, giving his aſſent to their pretended acts of legiſlation.

For quartering large bodies of armed troops amongſt us.

For protecting them, by a mock trial, from puniſhment for any murders which they ſhould commit on the inhabitants of theſe ſtates.

For cutting off our trade with all parts of the world.

For impoſing taxes on us without our conſent.

For depriving us, in many caſes, of the benefit of trial by jury.

For tranſporting us beyond ſeas to be tried for pretended offences.

For abolishing the free system of English laws in a neighbouring Province, establishing therein an arbitray government, and enlarging its boundaries, so as to render it at once an example and a fit instrument for introducing the same absolute rule into these Colonies.

For taking away our charters, abolishing our most valuable laws, and altering fundamentally the forms of our governments.

For suspending our own legislatures, and declaring themselves invested with power to legislate for us in all cases whatsoever.

He has abdicated government here, by declaring us out of his protection, and waging war against us.

He has plundered our seas, ravaged our coasts, burnt our towns, and destroyed the lives of our people.

He is at this time transporting large armies of foreign mercenaries to complete the works of death, desolation, and tyranny, already begun with circumstances of cruelty and perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the head of a civilized nation.

He has constrained our fellow citizens, taken captive on the high seas, to bear arms against their country, to become executioners of their friends and brethren, or to fall themselves by their hands.

He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers, the merciless Indian savages,

whoſe known rule of warfare is an undiſtinguiſhed deſtruction of all ages, ſexes, and conditions.

In every ſtage of theſe oppreſſions we have petitioned for redreſs in the moſt humble terms; our repeated petitions have been anſwered only by repeated injury. A prince whoſe character is thus marked by every act which may define a tyrant, is unfit to be the ruler of a free people.

Nor have we been wanting in attention to our Britiſh brethren; we have warned them, from time to time, of attempts by their legiſlature to extend an unwarrantable juriſdiction over us; we have reminded them of the circumſtances of our emigration and ſettlement here; we have appealed to their native juſtice and magnanimity, and we have conjured them by the ties of our common kindred, to diſavow theſe uſurpations, which would inevitably interrupt our connections and correſpondence. They too have been deaf to the voice of juſtice and conſanguinity. We muſt therefore acquieſce in the neceſſity which denounces our ſeparation, and hold them as we hold the reſt of mankind, enemies in war, in peace friends.

We, therefore, the repreſentatives of the United States of America, in General Congreſs aſſembled, appealing to the Supreme Juſtice of the world for the rectitude of our intentions, do, in the name of, and by the authority of the good people of theſe Colonies, ſolemnly publiſh, and declare, that theſe united Colonies are, and of right, ought to be, FREE and INDEPENDENT STATES, and that they

they are abſolved from all allegiance to the Britiſh Crown, and that all political connection between them and the ſtate of Great Britain is, and ought to be, totally diſſolved; and that as free and independent States, they have full power to levy war, conclude peace, contract alliances, eſtabliſh commerce, and to do all other acts and things, which Independent States may of right do. And for the ſupport of this declaration, with a firm reliance on the protection of Divine Providence, we mutually pledge to each other our lives, our fortunes, and our ſacred honour.

(Signed by order, and in behalf of the Congreſs.)

JOHN HANCOCK, Preſident.

(Atteſt) CHARLES THOMSON, Sec.

II. ALLIANCE WITH FRANCE.

A Treaty of Amity and Commerce between his MOST CHRISTIAN MAJESTY *and the* UNITED STATES *of* AMERICA.

WHEREAS his Moſt Chriſtian Majeſty and the United States of North America, namely, New Hampſhire,

Hampſhire, &c. &c. having this day concluded a Treaty of Amity and Commerce, for the mutual advantage of their ſubjects, think it neceſſary to take under their moſt ſerious conſideration the means of eſtabliſhing thoſe engagements upon a ſolid baſis, and rendering them ſubſervient to the ſecurity and peace of both parties; eſpecially in caſe Great Britain, in deteſtation of ſuch good correſpondence, which is the object of the ſaid treaty, ſhould break with France, either by direct hoſtilities, or by annoying its commerce and navigation, contrary to the rights of the nations, and to the good underſtanding ſubſiſting between the two Crowns.

And whereas his Majeſty and the United States have come to a reſolution, in the aforeſaid caſe, to unite their Councils, and direct their joint efforts againſt the undertakings of the common enemy; the reſpective Plenipotentiaries, authoriſed to agree upon ſuch conditions moſt likely to anſwer their intentions, after the moſt mature deliberation ſtipulated and agreed upon the following articles:

Art. 1. In caſe war ſhould break out between France and Great Britain, during the preſent conteſt between the latter and the United States, his Moſt Chriſtian Majeſty and the ſaid States will join in one cauſe, and mutually aſſiſt each other with their reſpective good offices, councils, and forces, as circumſtances may require, and as becomes good and faithful Allies.

Art. 2.

Art. 2. The direct and essential meaning of the present defensive alliance is effectually to maintain the freedom, sovereignty, absolute and unbounded independence of the United States both in matters of government and commerce.

Art. 3. The contracting Powers shall each on its part, and in such manner as may be deemed best, direct all their efforts against the common enemy, to the purpose of fulfilling the present engagement.

Art. 4. The contracting Powers covenant, that, in case either of them shall undertake any thing in which the concurrence of the other shall be deemed requisite, the latter shall directly, and *bona fide*, join the former, in order to act in concert, as far as circumstances and situations will permit; and, in such case, they shall by private convention regulate the number and kind of forces to be found, as well as the time and manner of acting, and the advantages which may be granted as a compensation.

Art. 5. If the United States shall think it convenient to attempt the reduction of the remaining Britannic possessions in the Northern parts of America, or in the Islands of Bermuda; such countries in case of success, shall be confederate with, or dependent on, the said States.

Art. 6. His Most Christian Majesty, for ever, gives up all thoughts of possessing himself of the Islands of Bermuda, or any part of the Continent in North-America, which, before the Treaty of

Paris

Paris, 1763, or by virtue thereof, have been acknowledged as belonging to the Crown of Great Britain, or the United States, heretofore denominated Britiſh Colonies, or are at preſent, or hitherto have been, under the power of the King and Crown of Great Britain.

Art. 7. In caſe his Moſt Chriſtian Majeſty ſhould attack any of the iſlands ſituate in or near the Gulf of Mexico, which are at preſent within the dominions of Great Britain, and ſhould take the ſame, they ſhall belong to the Crown of France.

Art. 8. Neither of the contracting Powers ſhall be at liberty to conclude peace or truce with Great Britain, without the previous and formal conſent of the other. And they do mutually engage not to lay down their arms before the independence of the United States ſhall have been formally or implicitly ſecured by the treaty or treaties, which ſhall terminate the war.

Art. 9. The contracting parties do declare, that, being reſolved, each on its part, to fulfil the articles and conditions of the preſent Treaty of Alliance, according to their power and circumſtances, there will be no manner of compenſation reſerved, neither on one part nor the other, whatever may be the iſſue of the war.

Art. 10. His Moſt Chriſtian Majeſty and the United States do agree to invite or admit any other Power as may have experienced any wrongs from England to join with them, and accede to the

the preſent alliance, under ſuch conditions as may freely be agreed upon and regulated between all parties.

Art. 11. The two contracting parties guaranty each other, from this inſtant, and for ever, againſt all other Powers, viz. The United States to his Moſt Chriſtian Majeſty all the American poſſeſſions now belonging to the Court of France, as well as thoſe that may be made over to it by a future treaty of peace; and his Moſt Chriſtian Majeſty guaranties on his part to the United States their freedom, ſovereignty, and abſolute independence both in matters of goverment and commerce, as alſo their poſſeſſions and the increaſe or conqueſts, as may ariſe from their confederation during the war, over any of the domains now, or heretofore the property of Great Britain, in North-America, agreeable to the foregoing 5th and 6th Articles; ſo that the poſſeſſion ſhall be fixed and ſecured to the ſaid States at the concluſion of their preſent war with England.

Art. 12. That the meaning of the foregoing Articles may be more preciſely underſtood, the contracting parties do declare, that, in caſe of a rupture between France and England, the guaranty aforeſaid ſhall be in full force, from the inſtant the war ſhall be declared; if the caſe ſhould be otherwiſe, the mutual obligations of the ſaid guaranty ſhall only take place from the time that a ceſſation of hoſtilities between England and the ſaid States ſhall have aſcertained the latter.

Art. 13.

Art. 13. The preſent Treaty ſhall be ratified on both ſides, and the ratification interchanged within the ſpace of ſix months, or ſooner if poſſible.

In witneſs whereof the reſpective Plenipotentiaries, viz. on the part of his Moſt Chriſtian Majeſty, the Sieur Conrad Alexandre Gerard, &c. &c. On the part of the States, the Sieur Benjamin Franklin, Deputy to Congreſs from Pennſylvania, and Preſident of the Convention to the ſaid States, Silas Deane, &c. and Arthur Lee, LL. D. who have hereunto ſet their hands and ſeals; declaring meanwhile, that the preſent Treaty was compoſed and concluded in the French language.

Done at Paris, Feb. 6, 1778.

(L. S.) C. A. GERARD.

(L. S.) BENJ. FRANKLIN.

(L. S.) SILAS DEANE.

(L. S.) ARTHUR LEE.

The

III. *The* DEFINITIVE TREATY *between* GREAT-BRITAIN *and the* UNITED STATES OF AMERICA. *Signed at Paris, the 3d Day of September*, 1783.

In the Name of the Moſt Holy and Undivided Trinity.

IT having pleaſed the Divine Providence to diſpoſe the hearts of the Moſt Serene and Moſt Potent Prince George the Third, by the Grace of God King of Great Britain, France, and Ireland, Defender of the Faith, Duke of Brunſwick and Lunenburgh, Arch-Treaſurer and Prince Elector of the Holy Roman Empire, &c. and of the United States of America, to forget all paſt miſunderſtandings and differences that have unhappily interrupted the good correſpondence and friendſhip which they mutually wiſh to reſtore, and to eſtabliſh ſuch a beneficial and ſatisfactory intercourſe between the two countries, upon the ground of reciprocal advantages and mutual convenience, as may promote and ſecure to both perpetual peace and harmony; and having for this deſirable end already laid the foundation of peace and reconciliation, by the Proviſional Articles ſigned at Paris on the 30th of November, 1782, by the Commiſſioners empowered on each part, which Articles were agreed to be inſerted in,

in, and to conſtitute the Treaty of Peace propoſed to be concluded between the Crown of Great Britain and the ſaid United States, but which Treaty was not to be concluded until terms of Peace ſhould be agreed upon between Great Britain and France, and his Britannic Majeſty ſhould be ready to conclude ſuch Treaty accordingly; and the Treaty between Great Britain and France, having ſince been concluded, his Britannic Majeſty and the United States of America, in order to carry into full effect the Proviſional Articles above-mentioned, according to the tenor thereof, have conſtituted and appointed, that is to ſay, his Britannic Majeſty on his part, David Hartley, Eſq. Member of the Parliament of Great Britain, and the ſaid United States on their part, John Adams, Eſq. late a Commiſſioner of the United States of America at the Court of Verſailles, late Delegate in Congreſs from the State of Maſſachuſetts, and Chief Juſtice of the ſaid State, and Miniſter Plenipotentiary of the ſaid United States to their High Mightineſſes the States-General of the United Netherlands; Benjamin Franklin, Eſq. late Delegate in Congreſs from the State of Pennſylvania, Preſident of the Convention of the ſaid State, and Miniſter Plenipotentiary from the United States of America at the Court of Verſailles; and John Jay, Eſq. late Preſident of Congreſs, and Chief Juſtice of the State of New-York, and Miniſter Plenipotentiary from the ſaid United States at the Court of Madrid,

drid, to be the Plenipotentiaries for the concluding and ſigning the preſent Definitive Treaty; who, after having reciprocally communicated their reſpective full powers, have agreed upon and confirmed the following Articles:

ART. I. His Britannic Majeſty acknowledges the ſaid United States, viz. New-Hampſhire, Maſſachuſetts-Bay, Rhode-Iſland and Providence Plantations, Connecticut, New-York, New-Jerſey, Pennſylvania, Delaware, Maryland, Virginia, North-Carolina, South-Carolina, and Georgia, to be free, ſovereign, and independent States; that he treats with them as ſuch, and for himſelf, his heirs, and ſucceſſors, relinquiſhes all claims to the government, propriety, and territorial rights of the ſame, and every part thereof.

ART. II. And that all diſputes which might ariſe in future on the ſubject of the boundaries of the ſaid United States may be prevented, it is hereby agreed and declared, that the following are and ſhall be their boundaries, viz. From the north-weſt angle of Nova-Scotia, viz. That angle which is formed by a line drawn due north from the ſource of St. Croix River to the Highlands, along the ſaid Highlands, which divide thoſe rivers that empty themſelves into the river St. Lawrence, from thoſe which fall into the Atlantic Ocean to the North-weſternmoſt head of Connecticut-river; thence down along the middle of that river to the forty-fifth degree of north-latitude; from thence by a line due weſt on ſaid latitude,

until it ſtrikes the river Irriquois or Caatraquy; thence along the middle of the ſaid river into Lake Ontario; through the middle of ſaid lake, until it ſtrikes the communication by water between that lake and Lake Erie; thence along the middle of ſaid communication into Lake Erie, through the middle of ſaid lake, until it arrives at the water communication between that lake and Lake Huron; thence through the middle of ſaid lake to the water communication between that lake and Lake Superior; thence through Lake Superior northward of the Iſles Royal and Phelipeaux to the Long Lake; thence through the middle of ſaid Long Lake and the water communication between it and the Lake of the Woods, to the ſaid Lake of the Woods; thence through the ſaid lake to the moſt north-weſtern point thereof, and from thence on a due weſt courſe to the River Miſſiſſippi; thence by a line to be drawn along the middle of the ſaid River Miſſiſſippi; until it ſhall interſect the northernmoſt part of the thirty-firſt degree of north latitude. South, by a line to be drawn due eaſt from the determination of the line laſt-mentioned in the latitude of thirty-one degrees north of the equator, to the middle of the River Apalachicola or Catahouche; thence along the middle thereof to its junction with the Flint-river; thence ſtrait to the head of St. Mary's River; and thence down along the middle of St. Mary's River to the Atlantic Ocean; eaſt, by a line to be drawn along the middle of the River

St.

St. Croix from its mouth in the Bay of Fundy to its ſource, and from its ſource directly north to the aforeſaid Highlands, which divide the rivers that fall into the Atlantic Ocean from thoſe which fall into the River St. Lawrence, comprehending all Iſlands within twenty leagues of any part of the ſhores of the United States, and lying between lines to be drawn due eaſt from the points where the aforeſaid boundaries between Nova-Scotia on the one part, and Eaſt-Florida on the other, ſhall reſpectively touch the Bay of Fundy and the Atlantic Ocean, excepting ſuch Iſlands as now are or heretofore have been within the limits of the ſaid province of Nova Scotia.

ART. III. It is agreed that the people of the United States ſhall continue to enjoy unmoleſted the right to take fiſh of every kind on the Grand Bank, and on all the other Banks of Newfoundland, alſo in the Gulph of St. Lawrence, and all other places in the ſea, where the inhabitants of both countries uſed at any time heretofore to fiſh. And alſo that the inhabitants of the United States ſhall have liberty to take fiſh of every kind on ſuch part of the coaſt of Newfoundland as Britiſh fiſhermen ſhall uſe, (but not to dry or cure the ſame on that Iſland) and alſo on the coaſts, bays and creeks of all of his Britannic Majeſty's dominions in America; and that the American fiſhermen ſhall have liberty to dry and cure fiſh in any of the unſettled bays, harbours and creeks of Nova-Scotia, Magdalen Iſlands and Labrador, ſo

long as the ſame ſhall remain unſettled; but ſo ſoon as the ſame or either of them ſhall be ſettled, it ſhall not be lawful for the ſaid fiſhermen to dry or cure fiſh at ſuch ſettlement, without a previous agreement for that purpoſe with the inhabitants, proprietors or poſſeſſors of the ground.

ART. IV. It is agreed that the creditors on either ſide ſhall meet with no lawful impediment to the recovery of the full value, in ſterling money, of all *bona fide* debts heretofore contracted.

ART. V. It is agreed that Congreſs ſhall earneſtly recommend to the Legiſlatures of the reſpective States, to provide for the reſtitution of all eſtates, rights, and properties, which have been confiſcated, belonging to real Britiſh ſubjects; and alſo of the eſtates, rights, and properties of perſons reſident in diſtricts in the poſſeſſion of his Majeſty's arms, and who have not borne arms againſt the ſaid United States; and that perſons of any other deſcription ſhall have free liberty to go to any part or parts of any of the Thirteen United States, and therein to remain twelve months unmoleſted in their endeavours to obtain the reſtitution of ſuch of their eſtates, rights, and properties, as may have been confiſcated; and that Congreſs ſhall alſo earneſtly recommend to the ſeveral States a re-conſideration and reviſion of all Acts or Laws regarding the premiſes, ſo as to render the ſaid Laws or Acts perfectly conſiſtent not only with juſtice and equity, but with that ſpirit of conciliation, which, on the return of the bleſſings of

peace,

peace, ſhould univerſally prevail; and that Congreſs ſhall alſo earneſtly recommend to the ſeveral States, that the eſtates, rights, and properties of ſuch laſt-mentioned perſons ſhall be reſtored to them, they refunding to any perſons who may be now in poſſeſſion the *bona fide* price (where any has been given) which ſuch perſons may have paid on purchaſing any of the ſaid lands, rights, or properties ſince the confiſcation.

And it is agreed, that all perſons who have any intereſt in confiſcated lands, either by debts, marriage ſettlements, or otherwiſe, ſhall meet with no lawful impediment in the proſecution of their juſt rights.

ART. VI. That there ſhall be no future confiſcations made, nor any proſecutions commenced againſt any perſon or perſons for, or by reaſon of the part which he or they may have taken in the preſent war; and that no perſon ſhall, on that account, ſuffer any future loſs or damage, either in his perſon, liberty, or property; and that thoſe who may be in confinement on ſuch charges, at the time of the ratification of the Treaty in America, ſhall be immediately ſet at liberty, and the proſecutions ſo commenced be diſcontinued.

ART. VII. There ſhall be a firm and perpetual peace between his Britannic Majeſty and the ſaid States, and between the ſubjects of the one, and the citizens of the other; wherefore all hoſtilities both by ſea and land ſhall, from henceforth, ceaſe; all priſoners on both ſides ſhall be ſet at

liberty, and his Britannic Majeſty ſhall, with all convenient ſpeed, and without cauſing any deſtruction, or carrying away any negroes, or other property of the American inhabitants, withdraw all his armies, garriſons, and fleets from the ſaid United States, and from every poſt, place, and harbour within the ſame, leaving in all fortifications the American artillery that may be therein; and ſhall alſo order and cauſe all archives, records, deeds, and papers belonging to any of the ſaid States, or their citizens, which in the courſe of the war may have fallen into the hands of his officers, to be forthwith reſtored, and delivered to the proper States and perſons to whom they belong.

ART. VIII. The navigation of the River Miſſiſſippi, from its ſource to the ocean, ſhall for ever remain free and open to the ſubjects of Great Britain, and the citizens of the United States.

ART. IX. In caſe it ſhould ſo happen that any place or territory belonging to Great Britain, or to the United States, ſhould have been conquered by the arms of either from the other, before the arrival of the ſaid Proviſional Articles in America, it is agreed that the ſame ſhall be reſtored without difficulty, and without requiring any compenſation.

ART. X. The ſolemn ratifications of the preſent Treaty, expedited in good and due form, ſhall be exchanged between the the Contracting Parties in the ſpace of ſix months, or ſooner, if poſſible,

poſſible, to be computed from the day of the ſignature of the preſent Treaty. In witneſs whereof we the underſigned, their Miniſters Plenipotentiary, have in their name, and in virtue of our full powers, ſigned with our hands the preſent Definitive Treaty, and cauſed the Seals of our Arms to be affixed thereto.

Done at Paris, this 3d day of September, in the year of our Lord one thouſand ſeven hundred and eighty-three.

(L. S.) JOHN ADAMS.
(L. S.) DAVID HARTLEY.
(L. S.) B. FRANKLIN.
(L. S.) JOHN JAY.

GEORGE R.

George the Third, by the Grace of God, King of Great Britain, France and Ireland, Defender of the Faith, Duke of Brunſwick and Lunenburgh, Arch-Treaſurer and Prince Elector of the Holy Roman Empire, &c. To all to whom theſe Preſents ſhall come, Greeting;

Whereas, for the perfecting and eſtabliſhing the peace, friendſhip, and good underſtanding, ſo happily commenced by the Proviſional Articles ſigned at Paris the thirtieth day of November laſt, by the Commiſſioners of us and our good friends the United States of America, viz. New-Hampſhire, Maſſachuſetts-Bay, Rhode-Iſland, Connecticut, New-York, New-Jerſey, Pennſylvania, the three Lower Counties on Delaware, Maryland,

Virginia, North-Carolina, South-Carolina and Georgia, in North-America, and for opening, promoting and rendering perpetual the mutual intercourſe of trade and commerce between our kingdoms and the dominions of the ſaid United States, we have thought proper to inveſt ſome fit perſon with full powers on our part to meet and confer with the Miniſters of the ſaid United States, now reſiding at Paris, duly authorized for the accompliſhing of ſuch laudable and ſalutary purpoſes. Now know ye that we, repoſing ſpecial truſt and confidence in the wiſdom, loyalty, diligence, and circumſpection of our truſty and well-beloved David Hartley, Eſq. (on whom we have therefore conferred the rank of our Miniſter Plenipotentiary) have nominated, conſtituted, and appointed, and by theſe preſents do nominate, conſtitute and appoint him our true, certain, and undoubted Commiſſioner, Procurator, and Plenipotentiary, giving and granting to him all and all manner of faculty, power, and authority, together with general as well as ſpecial order (ſo as the general do not derogate from the ſpecial, nor on the contrary) for us and in our name, to meet, confer, treat and conclude with the Miniſter or Miniſters furniſhed with ſufficient powers on the part of our ſaid good friends the United States of America, of and concerning all ſuch matters and things as may be requiſite and neceſſary for accompliſhing and completing the ſeveral ends and purpoſes herein before-mentioned; and alſo for

us

us and in our name to ſign ſuch Treaty or Treaties, Convention or Conventions, or other inſtruments whatſoever, as may be agreed upon in the premiſes; and mutually to deliver and receive the ſame in exchange, and to do and perform all ſuch other acts, matters, and things as may be any ways proper and conducive to the purpoſes above-mentioned, in as full and ample form and manner, and with the like validity and effect, as we ourſelf, if we were preſent, could do and perform the ſame; engaging and promiſing on our Royal word, that we will accept, ratify, and confirm, in the moſt effectual manner, all ſuch acts, matters, and things, as ſhall be ſo tranſacted and concluded by our aforeſaid Commiſſioner, Procurator, and Plenipotentiary, and that we will never ſuffer any perſon to violate the ſame in the whole or in part, or to act contrary thereto. In teſtimony and confirmation of all which, we have cauſed our Great Seal of Great Britain to be affixed to theſe preſents, ſigned with our Royal hand.

Given at our Palace at St. James's, the fourteenth day of May, in the year of our Lord one thouſand ſeven hundred and eighty-three, and in the twenty-third year of our reign.

I David Hartley, the Miniſter above-named, certify the foregoing to be a true Copy from my original Commiſſion, delivered to the American Miniſters this 19th day of May, 1783.

(Signed) DAVID HARTLEY.

The

The UNITED STATES of AMERICA in CONGRESS affembled,

To all to whom theſe Preſents ſhall come, ſend Greeting.

WHEREAS theſe United States, from a ſincere deſire of putting an end to the hoſtilities between his Moſt Chriſtian Majeſty and theſe United States on the one part, and his Britannic Majeſty on the other and of terminating the ſame by a peace founded on ſuch ſolid and equitable principles as reaſonably to promiſe a permanency of the bleſſings of tranquillity, did heretofore appoint the Hon. John Adams, late a Commiſſioner of the United States of America at the Court of Verſailles, late Delegate in Congreſs from the State of Maſſachuſetts, and Chief Juſtice of the ſaid State, their Miniſter Plenipotentiary, with full powers general and ſpecial to act in that quality, to confer, treat, agree, and conclude with the Ambaſſadors or Plenipotentiaries of his Moſt Chriſtian Majeſty, and of his Britannic Majeſty, and thoſe of any other Princes or States whom it might concern, relating to the re-eſtabliſhment of peace and friendſhip; and whereas the flames of war have ſince that time been extended, and other Nations and States are involved therein: Now know ye, that we ſtill continuing earneſtly deſirous, as far as depends upon us, to put a ſtop to the effuſion of blood, and to convince the Powers of

of Europe, that we wiſh for nothing more ardently than to terminate the war by a ſafe and honourable peace, have thought proper to renew the powers formerly given to the ſaid John Adams, and to join four other perſons in commiſſion with him; and having full confidence in the integrity, prudence, and ability of the Honourable Benjamin Franklin, our Miniſter Plenipotentiary at the Court of Verſailles, and the Honourable John Jay, late Preſident of Congreſs and Chief-Juſtice of the State of New-York, and our Miniſter Plenipotentiary at the Court of Madrid, and the Hon. Henry Laurens, formerly Preſident of Congreſs, and commiſſionated and ſent as our Agent to the United Provinces of the Low Countries, and the Hon. Thomas Jefferſon, Governor of the Common-wealth of Virginia, have nominated, conſtituted, and appointed, and by theſe preſents do nominate, conſtitute, and appoint the ſaid Benjamin Franklin, John Jay, Henry Laurens, and Thomas Jefferſon, in addition to the ſaid John Adams, giving and granting to them, the ſaid John Adams, Benjamin Franklin, John Jay, Henry Laurens, and Thomas Jefferſon, or the majority of them, or of ſuch of them as may aſſemble, or, in caſe of the death, abſence, indiſpoſition, or other impediment of the others, to any one of them, full power and authority, general and ſpecial, conjunctly and ſeparately, and ſpecial command to repair to ſuch place as may be fixed upon for opening negociations for peace, and there, for

and in our name, to confer, treat, agree, and conclude with our Ambaſſadors, Commiſſioners Plenipotentiaries of the Princes and States whom it may concern, veſted with equal powers relating to the eſtabliſhment of Peace; and whatſoever ſhall be agreed and concluded for us and in our name to ſign; and thereupon make a Treaty or Treaties and to tranſact every thing that may be neceſſary for compleating, ſecuring, and ſtrengthening the great work of pacification, in as ample form, and with the ſame effect, as if we were perſonally preſent and acted therein, hereby promiſing in good faith that we will accept, ratify, fulfil, and execute whatever ſhall be agreed, concluded, and ſigned by our ſaid Miniſters Plenipotentiary, or a majority of them, or of ſuch of them as may aſſemble, or in caſe of the death, abſence, indiſpoſition, or other impediment of the others, by any one of them; and that we will never act nor ſuffer any perſon to act contrary to the ſame in whole or in any part. In witneſs whereof we have cauſed theſe preſents to be ſigned by our Preſident, and ſealed with his Seal.

Done at Philadelphia, the fifteenth day of June, in the year of our Lord one thouſand ſeven hundred and eighty-one, and in the fifth year of our Independence. By the United States in Congreſs ſembled.

(Signed) SAM. HUNTINGTON, Preſident.
CHARLES THOMSON, Sec.

We

We certify the foregoing copies of the reſpective full powers to be authentic. Paris, Sept. 3, 1783.

(Signed) GEORGE HAMMOND Secretary to the Britiſh Commiſſion.

W. T. FRANKLIN, Secretary to the American Commiſſion.

RATIFICATION *of* PEACE *by the* AMERICAN CONGRESS.

By the UNITED STATES, in CONGRESS aſſembled.

A PROCLAMATION.

WHEREAS definitive articles of peace and friendſhip, between the United States of America and his Britannic Majeſty, were concluded and ſigned at Paris, on the 3d day of September, 1783, by the Plenipotentiaries of the ſaid United States and of his Britannic Majeſty, duly and reſpectively authoriſed for that purpoſe; which definitive articles are in the words following:

And we the United States in Congreſs aſſembled, having ſeen and duly conſidered the definitive articles aforeſaid, did by a certain act under the ſeal of the United States, bearing date this 14th

day of Jan. 1784, approve, ratify and confirm the ſame, and every part and clauſe thereof, engaging and promiſing that we would ſincerely and faithfully perform and obſerve the ſame, and never ſuffer them to be violated by any one, or tranſgreſſed in any manner as far as ſhould be in our power; and being ſincerely diſpoſed to carry the ſaid articles into execution truly, honeſtly, and with good faith, according to the intent and meaning thereof, we have thought proper by theſe preſents, to notify the premiſes to all good citizens of the United States, hereby requiring and enjoining all bodies of magiſtracy, legiſlative, executive and judiciary, all perſons bearing office, civil or military, of whatſoever rank, degree, powers, and all others the good citizens of theſe States of every vocation and condition, that the reverencing thoſe ſtipulations entered into on their behalf, under the authority of the federal bond by which their exiſtence as an independent people is bound up together, and is known and acknowledged by the nations of the world, and with that good faith which is every man's ſureſt guide within their ſeveral offices, juriſdictions, and vocations, they carry into effect the ſaid definitive articles, and every clauſe and ſentiment thereof, ſincerely, ſtrictly and completely.

Given under the Seal of the United States. Witneſs his Excellency THOMAS MIFFLIN, Preſident, at Annapolis, this 14th day of January, in the year of our Lord one thouſand

ſeven hundred and eighty-four, and of the ſovereignty and independence of the United States of America the eighth.

CHARLES THOMSON, Sec.

A TREATY *of* AMITY *and* COMMERCE *between his Majeſty the King of* PRUSSIA, *and the United States of* AMERICA.

HIS Majeſty the King of Pruſſia, and the United States of America, deſiring to fix in a permanent and equitable manner, the rules to be obſerved in the intercourſe and commerce they deſire to eſtabliſh between their reſpective countries, have judged, that the ſaid end cannot be better obtained than by taking the moſt perfect equality and reciprocity for the baſis of their agreement.

With this view, his Majeſty the King of Pruſſia has nominated and conſtituted, as his Plenipotentiary, the Baron Frederic William de Thulemeyer, Envoy Extraordinary with their High Mightineſſes the States General of the United Netherlands; and the United States have, on their part, given full powers to John Adams, Eſq. now Miniſter Plenipotentiary of the United States with his Britannic Majeſty: Dr. Benjamin Franklin, and Thomas Jefferſon, reſpective Plenipotentiaries

ries, have concluded articles, of which the following is an abſtract, ſo far as concerns the States of America.

The ſubjects of his Majeſty the King of Pruſſia may frequent all the coaſts and countries of the United States of America, and reſide and trade there in all ſorts of produce, manufactures, and merchandize, and ſhall pay within the ſaid United States no other or greater duties, charges, or fees whatſoever, than the moſt favoured nations are or ſhall be obliged to pay; and they ſhall enjoy all the rights, privileges, and exemptions, in navigation and commerce, which the moſt favoured nation does or ſhall enjoy; ſubmitting themſelves to the laws and uſages there eſtabliſhed.

In like manner, the citizens of the United States of America may frequent all the coaſts and countries of his Majeſty the King of Pruſſia, and reſide and trade there in all ſorts of produce, manufactures, and merchandize, and ſhall pay in the dominions of his ſaid Majeſty, no other greater duties, charges, or fees whatſoever, than the moſt favoured nation is or ſhall be obliged to pay; and they ſhall enjoy all the rights, privileges and exemptions, in navigation and commerce, which the moſt favoured nation does or ſhall enjoy; ſubmitting themſelves as aforeſaid.

Each party ſhall have a right to carry their own produce, manufactures and merchandize, in their own or any other veſſels, to any parts of the dominions

minions of the other, where it ſhall be lawful for all the ſubjects or citizens of that other freely to purchaſe them; and thence to take the produce, manufactures and merchandize of the other, which all the ſaid citizens or ſubjects ſhall in like manner be free to ſell them, paying in both caſes ſuch duties, charges, and fees only, as are or ſhall be paid by the moſt favoured nation.

Each party ſhall endeavour to protect and defend all veſſels, and other effects, belonging to the citizens or ſubjects of the other, which ſhall be within the extent of their juriſdiction by ſea or land; and ſhall uſe all their efforts to recover, and cauſe to be reſtored to their right owners, their veſſels and effects which ſhall be taken from them within the extent of their ſaid juriſdiction.

If one of the contracting parties ſhould be engaged in war with other powers, the free intercourſe and commerce of the ſubjects or citizens of the party remaining neuter with the belligerent powers, ſhall not be interrupted. On the contrary, in that caſe, as in full peace, the veſſels of the neutral party may navigate freely to and from the ports, and on the coaſts of the belligerent parties, free veſſels making free goods, inſomuch, that all things ſhall be adjudged free which ſhall be on board any veſſel belonging to the neutral party, although ſuch things belong to an enemy of the other; and the ſame freedom ſhall be extend-

ed to perſons who ſhall be on board a free veſſel, although they ſhould be enemies to the other party, unleſs they be ſoldiers in actual ſervice of ſuch enemy.

In the ſame caſe of one of the contracting parties being engaged in war with any other power—to prevent all the difficulties and miſunderſtandings which uſually ariſe reſpecting the merchandize heretofore called contraband, ſuch as arms, ammunition and military ſtores of every kind—no ſuch articles carried in the veſſels, or by the ſubjects or citizens of one of the parties to the enemies of the other, ſhall be deemed contraband, ſo as to induce confiſcation or condemnation, and a loſs of property to individuals. But in the caſe ſuppoſed—of a veſſel ſtopped for the articles heretofore deemed contraband, if the maſter of the veſſel ſtopped will deliver out the goods ſuppoſed to be of contraband nature, he ſhall be admitted to do it, and the veſſel ſhall not in that caſe be carried into any port, nor further detained, but ſhall be allowed to proceed on her voyage.

If the contracting parties ſhall be engaged in war againſt a common enemy, the following points ſhall be obſerved between them.

1ſt, If a veſſel of one of the parties, re-taken by a privateer of the other, ſhall not have been in poſſeſſion of the enemy more than 24 hours, ſhe ſhall be reſtored to the firſt owner for one third of the value of the veſſel and cargo; but if ſhe ſhall

have been more than 24 hours in poſſeſſion of the enemy, ſhe ſhall belong wholly to the re-captor. 2d, If in the ſame caſe the re-capture were by a public veſſel of war of the one party, reſtitution ſhall be made to the owner of one thirtieth part of the veſſel and cargo, if ſhe ſhall not have been in the poſſeſſion of the enemy more than 24 hours; and one tenth of the ſaid value where ſhe ſhall have been longer; which ſums ſhall be deſtributed in gratuities to the re-captors. 3d, The reſtitution in the caſes aforeſaid ſhall be after due proof of property, and ſurety given for the part to which the re-captors are entitled. 4th, The veſſels of war, public and private, of the two parties, ſhall be reciprocally admitted with their prizes into the reſpective ports of each; but the ſaid prizes ſhall not be diſcharged nor ſold there, until their legality ſhall have been decided according to the laws and regulations of the ſtate to which the captors belong, but by the judicators of the place into which the prize ſhall have been conducted. 5th, It ſhall be free to each party to make ſuch regulations as they ſhall judge neceſſary for the conduct of the reſpective veſſels of war, public or private, relative to the veſſels which they ſhall take and carry into the ports of the two parties.

Where the parties ſhall have a common enemy, or ſhall both be neutral, the veſſels of war of each ſhall upon all occaſions take under

their protection the veſſels of the other going the ſame courſe, and ſhall defend ſuch veſſels as long as they hold the ſame courſe, againſt all force and violence, in the ſame manner as they ought to protect and defend veſſels belonging to the party of which they are.

If war ſhould ariſe between the two contracting parties, the merchants of either country, then reſiding in the other, ſhall be allowed to remain nine months to collect their debts and ſettle their affairs, and may depart freely, carrying off all their effects, without moleſtation or hinderance.

This treaty ſhall be in force during the term of ten years from the exchange of ratifications;

(Signed)

F. G. de THULEMEYER, *à la Haye, le* 10 *Septembre* 1785.

THO. JEFFERSON, *Paris, July* 28, 1785,

B. FRANKLIN, *Paſſy, July*, 9, 1785.

JOHN ADAMS, *London, Aug.* 5, 1785.

NOW KNOW YE, That we the ſaid United States in Congreſs aſſembled, having conſidered and approved do hereby ratify and confirm the ſaid Treaty. Witneſs the Hon. Nathaniel Gotham, our Chairman, in the abſence of his Excellency John Hancock, our Preſident, the 7th day of May, in the year of our Lord 1786, and of our Independence and Sovereignty the tenth.

The

The new Plan of the Conſtitution of the UNITED STATES *of* AMERICA, *upon which the Convention of all the moſt diſtinguiſhed Men in the States have been deliberating for ſeveral Months.*

New-York, Sept. 21.

In Convention, Sept. 17, 1787.

SIR,

WE have now the honour to ſubmit to the conſideration of the United States, in Congreſs aſſembled, that Conſtitution which has appeared to us the moſt adviſeable.

The friends of our country have long ſeen and deſired, that the power of making war, peace, and treaties, that of levying money, and regulating commerce, and the correſpondent executive and judicial authorities, ſhould be fully and effectually veſted in the general government of the Union: but the impropriety of delegating ſuch extenſive truſt to one body of men is evident. Hence reſults the neceſſity of a different organization.

It is obviouſly impracticable, in the fœderal government of theſe States, to ſecure all rights of independent ſovereignty to each, and yet provide for the intereſt and ſafety of all. Individuals, entering into a ſociety, muſt give up a ſhare of liberty to preſerve the reſt. The magnitude of the ſacrifice muſt depend as well on ſituation and circumſtance, as on the object to be obtained. It is

at all times difficult to draw with preciſion the line between thoſe rights which muſt be ſurrendered, and thoſe which may be reſerved; and, on the preſent occaſion, this difficulty was encreaſed by a difference among the ſeveral States, as to their ſituation, extent, habits, and particular intereſts.

In all our deliberations on this ſubject, we kept ſteadily in our view, that which appears to us the greateſt intereſt of every true American—the conſolidation of our Union, in which is involved our proſperity, felicity, ſafety, perhaps our national exiſtence. This important conſideration, ſeriouſly and deeply impreſſed on our minds, led each State in the Convention to be leſs rigid on points of inferior magnitude than might have been otherwiſe expected; and thus the Conſtitution, which we now preſent, is the reſult of a ſpirit of amity, and that mutual deference and conceſſion which the peculiarity of our political ſituation rendered indiſpenſible.

That it will meet the full and entire approbation of every State is not perhaps to be expected; but each will doubtleſs conſider, that had her intereſts been alone conſulted the conſequences might have been particularly diſagreeable or injurious to others; that it is liable to as few exceptions as could reaſonably have been expected, we hope and believe; that it may promote the laſting welfare of that country ſo dear to us all, and ſecure her freedom and happineſs, is our moſt ardent wiſh.

With

With great reſpect, we have the honour to be, Sir, your Excellency's moſt obedient and humble ſervants,

GEORGE WASHINGTON, Preſident.

By unanimous order of the Convention.

His Excellency the Preſident of Congreſs.

WE, the people of the United States, in order to form a more perfect union, eſtabliſh juſtice, inſure domeſtic tranquility, provide for the common defence, promote the general welfare, and ſecure the bleſſings of liberty to ourſelves and our poſterity, do ordain and eſtabliſh this conſtitution for the United States of America.

ARTICLE I.

1. All legiſlative powers herein granted ſhall be veſted in a Congreſs of the United States, which ſhall conſiſt of a Senate and Houſe of Repreſentatives.

2. The Houſe of Repreſentatives ſhall be compoſed of Members choſen every ſecond year by the people of the ſeveral States, and the electors in each State ſhall have the qualifications requiſite of electors of the moſt numerous branch of the State Legiſlature.

No perſon ſhall be a Repreſentative, who ſhall not have attained to the age of 25 years, and been ſeven years a citizen of the United States, and who ſhall not when elected be an inhabitant of that State in which he ſhall be choſen.

Repreſentatives and direct taxes ſhall be apportioned among the ſeveral States which may be included within this union, according to their reſpective numbers, which ſhall be determined by adding to the whole number of free perſons, including thoſe bound to ſervice for a term of years, and excluding Indians not taxed, three-fifths of all other perſons. The actual enumeration ſhall be made within three years after the firſt meeting of the Congreſs of the United States, and within every ſubſequent term of ten years, in ſuch manner as they ſhall by law direct. The number of Repreſentatives ſhall not exceed one for every thirty thouſand; but each State ſhall have at leaſt one Repreſentative; and until ſuch enumeration ſhall be made, the State of New Hampſhire ſhall be entitled to chuſe three, Maſſachuſetts eight, Rhode Iſland and Providence Plantations one, Connecticut five, New York ſix, New Jerſey four Pennſylvania eight, Delaware one, Maryland ſix, Virginia ten, North Carolina five, South Carolina five, and Georgia three.

When vacancies happen to the Repreſentation from any State, the executive authority thereof ſhall iſſue writs of election to fill ſuch vacancies.

The Houſe of Repreſentatives ſhall chuſe their Speaker and other officers; and ſhall have the ſole power of impeachment.

3. The

3. The Senate of the United States ſhall be compoſed of two Senators from each State, choſen by the Legiſlature thereof for ſix years; and each Senator ſhall have one vote.

Immediately after they ſhall be aſſembled in conſequence of the firſt election, they ſhall be divided, as nearly as may be, into three claſſes. The ſeats of the Senators of the firſt claſs ſhall be vacated at the expiration of the ſecond year; of the ſecond claſs at the expiration of the fourth year; and of the third claſs at the expiration of the ſixth year, ſo that one-third may be choſen every ſecond year; and if vacancies happen by reſignation, or otherwiſe, during the receſs of the Legiſlature of any State, the executive authority thereof may make temporary appointments until the next meeting of the Legiſlature which ſhall then fill ſuch vacancies.

No perſon ſhall be a Senator who ſhall not have attained to the age of 30 years, and been nine years a citizen of the United States, and who ſhall not, when elected, be an inhabitant of that State for which he ſhall be choſen.

The Vice Preſident of the United States ſhall be Preſident of the Senate, but ſhall have no vote unleſs they be equally divided.

The Senate ſhall chooſe their other officers, and alſo a Preſident *pro tempore*, in the abſence of the Vice Preſident, or when he ſhall exerciſe the office of Preſident of the United States.

The

The Senate ſhall have the ſole power to try all impeachments. When ſitting for that purpoſe, they ſhall be on oath or affirmation. When the Preſident of the United States is tried, the Chief Juſtice ſhall preſide; and no perſon ſhall be convicted without the concurrence of two-thirds of the Members preſent.

Judgment in caſes of impeachment ſhall not extend farther than removal from office, and diſqualification to hold and enjoy any office of honour, truſt or profit, under the United States; but the party convicted ſhall nevertheleſs be liable and ſubject to indictment, trial, judgment, and puniſhment according to law.

4. The times, places, and manner of holding elections for Senators and Repreſentatives, ſhall be preſcribed in each State by the Legiſlature thereof; but the Congreſs may at any time by law make or alter ſuch regulations, except as to the places of chuſing Senators.

The Congreſs ſhall aſſemble at leaſt once in every year, and ſuch meeting ſhall be on the firſt Monday in December, unleſs they ſhall by law appoint a different day.

4. Each Houſe ſhall be the judge of the elections, returns, and qualifications of its own Members, and a majority of each ſhall conſtitute a quorum to do buſineſs; but a ſmaller number may adjourn from day to day, and may be authoriſed to compel the attendance of abſent Members, in ſuch manner,

manner, and under ſuch penalties, as each houſe may provide.

Each Houſe may determine the rules of its proceedings, puniſh its Members for diſorderly behaviour, and, with the concurrence of two-thirds, expel a Member.

Each Houſe ſhall keep a journal of its proceedings, and from time to time publiſh the ſame, excepting ſuch parts as may in their judgment require ſecrecy; and the yeas and nays of the Members of either Houſe on any queſtion ſhall, at the deſire of one-fifth of thoſe preſent, be entered on the journal.

Neither Houſe, during the ſeſſion of Congreſs, ſhall, without the conſent of the other, adjourn for more than three days, nor to any other place than that in which the two Houſes ſhall be ſitting.

6. The Senators and Repreſentatives ſhall receive a compenſation for their ſervices, to be aſcertained by law, and paid out of the Treaſury of the United States. They ſhall in all caſes, except treaſon, felony, and breach of the peace, be privileged from arreſt during their attendance at the ſeſſion of their reſpective Houſes, and in going to and returning from the ſame; and for any ſpeech or debate in either Houſe, they ſhall not be queſtioned in any other place.

No Senator or Repreſentative ſhall, during the time for which he was elected, be appointed to any civil office under the authority of the United State,

States, which ſhall have been created, or the emolument whereof ſhall have been encreaſed, during ſuch time, and no perſon holding any office under the United States ſhall be a Member of either Houſe during his continuance in office.

7. All bills for raiſing revenue ſhall originate in the Houſe of Repreſentatives; but the Senate may propoſe or concur with amendments as on other bills.

Every bill, which ſhall have paſſed the Houſe of Repreſentatives and the Senate, ſhall, before it become a law, be preſented to the Preſident of the United States; if he approve, he ſhall ſign it, but if not, he ſhall return it with his objections to that Houſe in which it ſhall have originated, who ſhall enter the objections at large on their journal, and proceed to reconſider it. If, after ſuch reconſideration, two-thirds of that Houſe ſhall agree to paſs the bill, it ſhall be ſent, together with the objections, to the other Houſe, by which it ſhall likewiſe be re-conſidered, and if approved by two-thirds of that Houſe, it ſhall become a law. But in all ſuch caſes the votes of both Houſes ſhall be determined by yeas and nays, and the names of the perſons voting for and againſt the bill ſhall be entered on the journal of each Houſe reſpectively. If any bill ſhall not be returned by the Preſident within ten days (Sundays excepted) after it ſhall have been preſented to him, the ſame ſhall be a law, in like manner as

if he had ſigned it, unleſs the Congreſs by their adjournment prevent its return, in which caſe it ſhall not be a law.

Every order, reſolution, or vote, to which the concurrence of the Senate and Houſe of Repreſentatives may be neceſſary (except on a queſtion of adjournment) ſhall be preſented to the Preſident of the United States; and, before the ſame ſhall take effect, ſhall be approved by him, or, being diſapproved by him, ſhall be repaſſed by two-thirds of the Senate and Houſe of Repreſentatives, according to the rules and limitations preſcribed in the caſe of a bill.

8. The Congreſs ſhall have power to lay and collect taxes, duties, impoſts and exciſes, to pay the debts and provide for the common defence and general welfare of the United States; but all duties, impoſts, and exciſes, ſhall be uniform throughout the United States.

To borrow money on the credit of the United States.

To regulate commerce with foreign nations, and among the ſeveral States, and with the Indian tribes.

To eſtabliſh an uniform rule of naturalization, and uniform laws on the ſubject of bankruptcies throughout the United States.

To coin money, regulate the value thereof and of foreign coin, and fix the ſtandards of weights and meaſures.

To

To provide for the puniſhment of counterfeiting the ſecurities and current coin of the United States.

To eſtabliſh poſt-offices and poſt-roads.

To promote the progreſs of ſcience and uſeful arts, by ſecuring for limited times to authors and inventors the excluſive right to their reſpective writings and diſcoveries.

To conſtitute tribunals inferior to the Supreme Court.

To define and puniſh piracies and felonies committed on the high ſeas, and offences againſt the law of nations.

To declare war, grant letters of marque and repriſal, and make rules concerning captures on land and water.

To raiſe and ſupport armies, but no appropriation of money to that uſe ſhall be for a longer term than two years.

To provide and maintain a navy.

To make rules for the government and regulation of the land and naval forces.

To provide for calling forth the militia, to execute the laws of the Union, ſuppreſs inſurrections, and repel invaſions.

To provide for organizing, arming, and diſciplining the militia, and for governing ſuch part of them as may be employed in the ſervice of the United States, reſerving to the States reſpectively the appointment of the officers, and the authority

of

of training the militia, according to the diſcipline preſcribed by Congreſs.

To exerciſe excluſive legiſlation in all caſes whatſoever over ſuch diſtrict (not exceeding ten miles ſquare) as may, by ceſſion of particular States, and the acceptance of Congreſs, become the ſeat of the government of the United States, and to exerciſe like authority over all places purchaſed by the conſent of the Legiſlature of the State, in which the ſame ſhall be, for the erection of forts, magazines, arſenals, dock-yards, and other needful buildings. And

To make all laws which ſhall be neceſſary and proper for carrying into execution the foregoing powers veſted by this Conſtitution in the Government of the United States, or in any department or office thereof.

9. The migration or importation of ſuch perſons as any of the States now exiſting ſhall think proper to admit, ſhall not be prohibited by the Congreſs, prior to the year of one thouſand eight hundred and eight; but a tax or duty may be impoſed on ſuch importation, not exceeding ten dollars for each perſon.

The privilege of the writ of *habeas corpus* ſhall not be ſuſpended, unleſs when in caſes of rebellion or invaſion, the Public ſafety may require it.

No bill of attainder, or *ex poſt facto* law ſhall be paſſed.

No

No capitation, or other direct tax, ſhall be laid, unleſs in proportion to the cenſus or enumeration herein before directed to be taken.

No tax or duty ſhall be laid on articles exported from any State. No preference ſhall be given, by any regulation of commerce or revenue, to the ports of one State over thoſe of another: nor ſhall veſſels bound to or from one State be obliged to enter, clear, or pay duties in another.

No money ſhall be drawn from the Treaſury, but in conſequence of appropriations made by law; and a regular ſtatement and account of the receipts and expenditures of all public money ſhall be publiſhed from time to time.

No title of nobility ſhall be granted by the United States; and no perſon holding any office of profit or truſt under them ſhall, without the conſent of the Congreſs, accept of any preſent, emolument, office, or title, of any kind whatever, from any King, Prince, or foreign State.

10. No State ſhall enter into any treaty, alliance, or confederation; grant letters of marque and repriſal; coin money; emit bills of credit; make any thing but gold and ſilver coin a tender in payment of debts; paſs any bill of attainder, *ex poſt facto* law, or law impairing the obligation of contracts, or grant any title of nobility.

No State ſhall, without the conſent of the Congreſs, lay impoſts or duties on imports or exports, except what may be abſolutely neceſſary for

for executing its inſpection laws; and the net produce of all duties and impoſts, laid by any State on imports or exports, ſhall be for the uſe of the Treaſury of the United States; and all ſuch laws ſhall be ſubject to the reviſion and controul of the Congreſs. No State ſhall, without the conſent of Congreſs, lay any duty of tonnage, keep troops or ſhips of war in time of peace, enter into any agreement or compact with another State, or with a foreign power, or engage in war, unleſs actually invaded, or in ſuch imminent danger, as will not admit of delay.

Article II.

1. The executive power ſhall be veſted in a Preſident of the United States of America. He ſhall hold his office during the term of four years; and together with the Vice-Preſident, choſen for the ſame term, be elected as follows:

Each State ſhall appoint, in ſuch manner as the Legiſlature thereof may direct, a number of electors, equal to the whole number of Senators and Repreſentatives to which the State may be entitled in the Congreſs; but no Senator or Repreſentative, or perſon holding an office of truſt or profit under the United States, ſhall be appointed an Elector.

The Electors ſhall meet in their reſpective States, and vote by ballot for two perſons, of whom one at leaſt ſhall not be an inhabitant of

the ſame State with themſelves. And they ſhall make a liſt of all the perſons voted for, and of the number of votes for each, which liſt they ſhall ſign and certify, and tranſmit, ſealed, to the ſeat of the government of the United States, directed to the Preſident of the Senate. The Preſident of the Senate ſhall, in the preſence of the Senate and Houſe of Repreſentatives, open all the certificates, and the votes ſhall then be counted. The perſon having the greateſt number of votes ſhall be the Preſident, if ſuch number be a majority of the whole number of electors appointed; and if there be more than one who have ſuch majority, and have an equal number of votes, then the Houſe of Repreſentatives ſhall immediately chooſe by ballot one of them for Preſident, and if no perſon have a majority, then from the five higheſt on the liſt the ſaid Houſe ſhall in like manner chooſe the Preſident. But in chooſing the Preſident, the votes ſhall be taken by States, the repreſentation from each State having one vote; a quorum for this purpoſe ſhall conſiſt of a Member or Members from two-thirds of the States, and a majority of all the States ſhall be neceſſary to a choice. In every caſe, after the choice of the Preſident, the perſon having the greateſt number of voters of the electors ſhall be the Vice-Preſident. But if there ſhould remain two or more who have equal votes, the Senate ſhall chooſe from them by ballot the Vice-Preſident.

The

The Congreſs may determine the time of chooſing the electors, and the day on which they ſhall give their votes; which day ſhall be the ſame throughout the United States.

No perſon, except a natural born citizen, or a citizen of the United States, at the time of the adoption of this Conſtitution, ſhall be eligible to the office of Preſident; neither ſhall any perſon be eligible to that office, who ſhall not have attained to the age of 35 years, and been 14 years a reſident within the United States.

In caſe of the removal of Preſident from office, or of his death, reſignation, or inability to diſcharge the powers and duties of the ſaid office, the ſame ſhall devolve on the Vice-Preſident, and the Congreſs may by law provide for the caſe of removal, death, reſignation, or inability, both of the Preſident and Vice-Preſident, declaring what officer ſhall then act as Preſident, and ſuch officer ſhall act accordingly, until the diſability be removed, or a Preſident ſhall be elected.

The Preſident ſhall, at ſtated times, receive for his ſervices a compenſation, which ſhall neither be encreaſed or diminiſhed during the period for which he ſhall have been elected, and he ſhall not receive within that period any other emolument from the United States, or any of them.

Before he enter on the execution of his office, he ſhall take the following oath or affirmation:

"I do ſolemnly ſwear (or affirm) that I will faithfully execute the office of Preſident of the United States, and will to the beſt of my ability preſerve, protect, and defend, the Conſtitution of the United States."

2. The Preſident ſhall be Commander in Chief of the army and navy of the United States, and of the militia of the ſeveral States, when called into the actual ſervice of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments, upon any ſubject relating to the duties of their reſpective offices, and he ſhall have power to grant reprieves and pardons for offences againſt the United States, except in caſes of impeachment.

He ſhall have power, by and with the advice and conſent of the Senate, to make treaties, provided two-thirds of the Senators preſent concur; and he ſhall nominate, and, by and with the advice and conſent of the Senate, ſhall appoint Ambaſſadors, other public Miniſters and Conſuls, Judges of the Supreme Court, and all other officers of the United States, whoſe appointments are not herein otherwiſe provided for, and which ſhall be eſtabliſhed by law. But the Congreſs may by law veſt the appointment of ſuch inferior officers as they may think proper, in the Preſident alone, in the courts of law, or in the heads of departments.

The

The Preſident ſhall have power to fill up all vacancies that may happen during the receſs of the Senate, by granting commiſſions which ſhall expire at the end of their next ſeſſion.

3. He ſhall from time to time give to the Congreſs information of the ſtate of their Union, and recommend to their conſideration ſuch meaſures as he ſhall judge neceſſary and expedient: He may, on extraordinary occaſions, convene both houſes, or either of them, and in caſe of diſagreement between them, with reſpect to the time of adjournment, he may adjourn them to ſuch time as he ſhall think proper; he ſhall receive Ambaſſadors and other public Miniſters; he ſhall take care that the laws be faithfully executed, and ſhall commiſſion all the officers of the United States.

4. The Preſident, Vice-Preſident, and all civil offices of the United States, ſhall be removed from office on impeachment for, and conviction of, treaſon, bribery, or other high crimes and miſdemeanors.

Article III.

1. The judicial power of the United States ſhall be veſted in one Supreme Court, and in ſuch inferior Courts as the Congreſs may from time to time ordain and eſtabliſh. The Judges, both of the Supreme and Inferior Courts, ſhall hold their offices during good behaviour, and

ſhall, at ſtated times, receive for their ſervices a compenſation, which ſhall not be diminiſhed during continuance in office.

2. The judicial power ſhall extend to all caſes in law and equity, ariſing under this Conſtitution, the laws of the United States, and treaties made, or which ſhall be made, under their authority; to all caſes affecting Ambaſſadors, other public Miniſters and Conſuls; to all caſes of Admiralty and maritime juriſdiction; to controverſies to which the United States ſhall be a party; to controverſies between two or more States, between a State and citizens of another State, between citizens of different States, between citizens of the ſame State claiming lands under grants of different States, and between a State, or the citizens thereof, and foreign States, citizens or ſubjects.

In all caſes affecting Ambaſſadors, other public Miniſters, and Conſuls, and thoſe in which a State ſhall be party, the Supreme Court ſhall have original juriſdiction, in all the other caſes beforementioned the Supreme Court ſhall have appellate juriſdiction, both as to law and fact, with ſuch exceptions, and under ſuch regulations as the Congreſs ſhall make.

The trial of all crimes, except in caſes of impeachment, ſhall be by Jury; and ſuch trial ſhall be held in the State where the ſaid crimes ſhall have been committed; but when not committed within any State, the trial ſhall be at ſuch place

or

or places as the Congreſs may by law have directed.

3. Treaſon againſt the United States ſhall conſiſt only in levying war againſt them, or in adhering to their enemies, giving them aid and comfort. No perſon ſhall be convicted of treaſon unleſs on the teſtimony of two witneſſes to the ſame overt act, or on confeſſion in open court.

The Congreſs ſhall have power to declare the puniſhment of treaſon, but no attainder of treaſon ſhall work corruption of blood or forfeiture, except during the life of the perſon attainted.

Article IV.

1. Full faith and credit ſhall be given in each State to the public acts, records, and judicial proceedings of every other State. And the Congreſs may by general laws preſcribe the manner in which ſuch acts, records and proceedings ſhall be proved, and the effect thereof.

2. The citizens of each State ſhall be entitled to all privileges and immunities of citizens in the ſeveral States.

A perſon charged in any State with treaſon, felony, or other crime, who ſhall flee from juſtice, and be found in another State, ſhall, on demand of the executive authority of the State from which he fled, be delivered up, to be removed to the State having juriſdiction of the crime.

No perſon held to ſervice or labour in one State, under the laws thereof, eſcaping into any other, ſhall, in conſequence of any law or regulation therein, be diſcharged from ſuch ſervice or labour, but ſhall be delivered up on claim of the party to whom ſuch ſervice or labour may be due.

3. New States may be admitted by the Congreſs into this Union; but no new State ſhall be formed or erected within the juriſdiction of any other State; nor any State be formed by the junction of two or more States, or parts of States, without the conſent of the Legiſlatures of the States concerned, as well as of the Congreſs.

The Congreſs ſhall have power to diſpoſe of and make all needful rules and regulations reſpecting the territory or other property belonging to the United States; and nothing in this Conſtitution ſhall be ſo conſtrued as to prejudice any claims of the United States, or of any particular State.

4. The United States ſhall guarantee to every State in this Union a Republican form of government, and ſhall protect each of them againſt invaſion; and on application of the Legiſlature, or of the executive (when the Legiſlature cannot be convened) againſt domeſtic violence.

Article V.

The Congreſs, whenever two-thirds of both Houſes ſhall deem it neceſſary, ſhall propoſe amendments

amendments to this Conſtitution, or, on the application of the Legiſlatures of two-thirds of the ſeveral States, ſhall call a Convention for propoſing amendments, which, in either caſe ſhall be valid to all intents and purpoſes, as part of this Conſtitution, when ratified by the Legiſlatures of three-fourths of the ſeveral States, or by Conventions in three-fourths thereof, as the one or the other mode of ratification may be propoſed by the Congreſs: provided that no amendment which may be made prior to the year one thouſand eight hundred and eight, ſhall in any manner affect the firſt and fourth clauſes in the ninth ſection of the firſt Article; and that no State, without its conſent, ſhall be deprived of its equal ſuffrage in the Senate.

Article VI.

All debts contracted, and engagements entered into, before the adoption of this Conſtitution, ſhall be as valid againſt the United States under this Conſtitution, as under the Confederation.

This Conſtitution, and the laws of the United States which ſhall be made in purſuance thereof; and all treaties made, or which ſhall be made, under the authority of the United States, ſhall be the ſupreme law of the land; and the Judges in every State ſhall be bound thereby, any thing in the

the Conſtitution or laws of any State to the contrary notwithſtanding.

The Senators and Repreſentatives before mentioned, and the Members of the ſeveral State Legiſlatures, and all executive and judicial officers, both of the United States and of the ſeveral States, ſhould be bound by oath or affirmation to ſupport this Conſtitution; but no religious teſt ſhall ever be required as a qualification to any office or public truſt under the United States.

ARTICLE VII.

The ratifications of the Conventions of nine States ſhould be ſufficient for the eſtabliſhment of this Conſtitution between the States ſo ratifying the ſame.

Done in Convention, by the unanimous conſent of the States preſent, the ſeventeenth day of September, in the year of our Lord one thouſand ſeven hundred and eighty-ſeven, and of the Independence of the United States of America the twelfth. In witneſs whereof we have hereunto ſubſcribed our names.

GEORGE WASHINGTON, Preſident,
And Deputy from Virginia.

John Langdon, Nicholas Gilman—*New Hampſhire.*

Nathaniel Goreham, Rufus King—*Maſſachuſetts.*

William

William Samuel Johnſon, Roger Sherman—*Connecticut.*

Alexander Hamilton—*New York.*

William Livingſton, David Brearley, William Paterſon, Jonathan Dayton—*New Jerſey.*

Benjamin Franklin, Thomas Mifflin, Robert Morris, George Clymer, Thomas Fitzſimons, Jared Ingerſol, James Wilſon, Gouverneur Morris—*Pennſylvania.*

George Read, Gunning Bedford, jun. John Dickinſon, Richard Baſſett, Jacob Broom, *Delaware.*

James M'Henry, Daniel of St. Thomas Jenifer, Daniel Carroll—*Maryland.*

John Blair, James Madiſon, jun.—*Virginia.*

William Blount, Richard Dobbs Spaight, Hugh Williamſon—*North Carolina.*

John Rutledge, Charles Coteſworth Pinckney, Charles Pinckney, Pierce Butler—*South Carolina.*

William Few, Abraham Baldwin—*Georgia.*

Atteſt. William Jackſon, Secretary.

In CONVENTION, Monday, Sept. 17, 1787.

PRESENT,

The States of New Hampſhire, Maſſachuſetts, Connecticut, Mr. Hamilton from New York, New Jerſey, Pennſylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia:

Reſolved

Reſolved,

THAT the preceding Conſtitution be laid before the United States in Congreſs aſſembled, and that it is the opinion of this Convention, that it ſhould afterwards be ſubmitted to a Convention of Delegates, choſen in each State by the people thereof, under the recommendation of its Legiſlature, for their aſſent and ratification; and that each Convention aſſenting to, and ratifying the ſame, ſhould give notice thereof to the United States in Congreſs aſſembled.

Reſolved,

That it is the opinion of this Convention, that as ſoon as the Conventions of nine States ſhall have ratified this Conſtitution, the United States in Congreſs aſſembled ſhould fix a day on which Electors ſhould be appointed by the States which ſhall have ratified the ſame, and a day on which the Electors ſhould aſſemble to vote for the Preſident, and the time and place for commencing proceedings under this Conſtitution. That after ſuch publication the Electors ſhould be appointed, and the Senators and Repreſentatives elected: That the Electors ſhould meet on the day fixed for the Election of the Preſident, and ſhould tranſmit their votes certified, ſigned, ſealed, and directed, as the Conſtitution requires, to the Secretary of the United States in Congreſs aſſembled, that the Senators and Repreſentatives ſhould convene at the

the time and place aſſigned; that the Senators ſhould appoint a Preſident of the Senate, for the ſole purpoſe of receiving, opening, and counting the votes for Preſident; and that, after he ſhall be choſen, the Congreſs, together with the Preſident, ſhould, without delay, proceed to execute this Conſtitution.

By the unanimous Order of the Convention,

GEORGE WASHINGTON, Preſident.
WILLIAM JACKSON, Secretary.

THE CHARACTER OF
GENERAL WASHINGTON.

GENERAL WASHINGTON was born February 11, O. S. 1732, in the pariſh of Waſhington, in Weſtmoreland County, in Virginia: His anceſtors were from England as long ago as 1657: He had his education principally from a private tutor; learnt ſome Latin, and the art of ſurveying. When he was fifteen years of age, he entered as a midſhipman on board a Britiſh veſſel of war, that was ſtationed on the coaſt of Virginia; but the plan was abandoned, on account of the reluctance his mother had againſt it.

He was appointed a Major of a regiment before he was twenty years old; and as the French had

made encroachments on the Engliſh ſettlements, he was ſent in 1753, by Lieutenant-Governor Dinwiddie, then Commander of the Province, to treat with the French and Indians, and to warn them againſt making encroachments, &c. He performed the duties of his miſſion with fidelity.

In 1754 the colony of Virginia raiſed a regiment for its defence, which was put under the command of Colonel Fry, and Major Waſhington was appointed Lieutenant-Colonel of the ſame; but the Colonel died that Summer, without joining the regiment, and the command fell to the Lieutenant-Colonel.

After forming his regiment, eſtabliſhing magazines, opening roads, and ſundry marches, he built a temporary ſtockade, at a place called the Great Meadows; and though his forces did not amount to four hundred effective men, he ſallied out, and defeated a number of the enemy, who were coming to reconnoitre his poſt; but on his return was attacked by an army about 1500 ſtrong; and after a gallant defence, in which more than one third of his men were killed and wounded, he was obliged to capitulate. The garriſon marched out with the honours of war, but were plundered by the Indians, in violation of the articles of the capitulation. After this the remains of his regiment returned to Alexandria, in Virginia, to be recruited, &c.

In

In 1755, "As no officer who did not imme-"diately derive his commiſſion from the King "could command one who did," Colonel Waſhington relinquiſhed his regiment, and went as an *extra Aid-de-Camp* into the family of *General Braddock*, who was ſent to drive the French, &c. from the borders of the Engliſh ſettlements.

The General was afterwards killed at the battle of Monongahela, and his army defeated, where Colonel Waſhington diſplayed his abilities, in covering a retreat, and ſaving the remains of the army.

Afterwards the ſupreme authority of Virginia gave him a new and extenſive commiſſion, whereby he was appointed Commander of all the troops raiſed, and to be raiſed, in that Colony.

He conducted as a good officer in defending the frontiers againſt the enemy, and in 1758 he commanded the *van brigade* of General *Forbes*'s army, in the capture of Fort du Queſne; and by his prudent conduct, the tranquillity of the frontiers of the middle Colonies was reſtored. But he reſigned his military appointment in 1759, by reaſon of his being ill of a pulmonic comp'aint.

As his health was afterwards gradually reſtored, he married a Mrs. Cuſtis, who was born the ſame year that he was: She was a handſome and an amiable young widow, poſſeſſed of an ample jointure, and he ſettled as a planter and a farmer on the eſtate where he now reſides, in Fairfax

county. After ſome years, he gave up planting tobacco, and went altogether into the farming buſineſs. He has raiſed 7000 buſhels of wheat and 10,000 of Indian corn in one year. His domeſtic plantation contains about 9,000 acres, and he poſſeſſes large quantities of excellent lands in ſeveral other counties.

He thus ſpent his time in cultivating the arts of peace, but was conſtantly a Member of the Aſſembly, a Magiſtrate of his county, and a Judge of the Court. In 1774, he was elected a Delegate to the firſt Congreſs, and was choſen again in 1775; the ſame year he was appointed by Congreſs Commander in Chief of the Forces of the United Colonies.

His conduct as a General is ſo well known, that it is needleſs for me to ſay much upon the ſubject. He went through many hardſhips, perils, and dangers, and conducted his military operations with ſuch great ſkill, that at laſt a peace commenced in 1783, whereby thirteen of the American Colonies were eſtabliſhed as Sovereign and Independent States.

Afterwards he reſigned his commiſſion to Congreſs, and retired to his plantation in Virginia.

Some time after the peace commenced, he received a *diploma* from the Univerſity at Cambridge, in the Commonwealth of Maſſachuſetts, conſtituting him a *Doctor of Laws*.

He

He is very regular, temperate, and induſtrious; riſes in Winter and Summer at the dawn of the day; generally reads or writes ſome time before breaſtfaſt; breakfaſts about ſeven o'clock on three ſmall Indian hoe cakes and as many diſhes of tea, and often rides immediately to his different farms, and remains with his labourers till a little after two o'clock, then returns and dreſſes. At three he dines, commonly on a ſingle diſh, and drinks from half a pint to a pint of Madeira wine. This, with one ſmall glaſs of punch, a draught of beer, and two diſhes of tea (which he takes half an hour before the ſetting of the Sun) conſtitutes his whole ſuſtenance until the next day. But his table is always furniſhed with elegance and exuberance; and whether he has company or not, he remains at the table an hour in familiar converſation, then every one preſent is called upon to give ſome abſent friend as a toaſt.

His temper is of a ſerious caſt, and his countenance carries the impreſſion of thoughtfulneſs; yet he perfectly reliſhes a pleaſant ſtory, an unaffected ſally of wit, or a burleſque deſcription, which ſurprizes by its ſuddenneſs and incongruity, with the ordinary appearance of the object deſcribed. After he has dined he applies himſelf to buſineſs, and about nine retires to reſt; but when he has company, he attends politely upon them till they wiſh to withdraw.

His family conſiſts of eight perſons, but he has no children: He keeps a pack of hounds, and in ſeaſon goes a hunting once in a week, in company with ſome of the gentlemen of Alexandria.

Agriculture is his favourite employment: He makes obſervations concerning the produce of his lands, and endeavours to throw light upon the farmer's buſineſs.

Linen and woollen cloths are manufactured under his roof, and order and œconomy are eſtabliſhed in all his departments, both within and without doors.

In 1787, he was choſen Preſident of the Federal Convention that met at Philadelphia, and framed the new Conſtitution; and ſince that time, he has been choſen Preſident of Congreſs, and has a ſalary of twenty-five thouſand dollars *per annum*.

Some have pretended that he is a native of England; but I underſtand that he never was in Europe.

CHAP. XLVIII.

How Provinces, Counties, Townſhips, and Highways, ought to be laid out. The Lengths and Breadths of the American Governments. The Longitudes, Latitudes, Bearings, and Diſtances of the principal Towns from Philadelphia.

I Have obſerved, that ſome of the American Governments are too large, and that others are too ſmall; for the Province of Quebec is 800 miles in length, and 200 in breadth; Virginia is 758 miles long, and 224 broad; Rhode-Iſland is 68 miles in length, and 40 in breadth; and Delaware is 92 miles long, and but 16 broad, according to accounts given of their limits.

Where they are too large, ſome of the Legiſlatures muſt be at a great diſtance from the ſeat of Government. Hence, thoſe who live in the weſterly parts of Canada muſt be four or five hundred miles from Quebec, where the Legiſlators convene, which is very inconvenient, as the fatigue and expence of travelling is very great. Some of the other Governments are alſo too large, and others too ſmall.

I ſhould admire at the Provinces being laid out in ſuch forms, were it not for the newneſs of the

country, and the various grants of lands that have from time to time been given by former Kings to emigrants who received charters, ſpecifying different limits, and ſettled in America.

Some counties are alſo too long, ſome are too narrow, ſome too large, and others too ſmall; and the ſame may be ſaid of townſhips and pariſhes.

Would it not be more convenient, if the Provinces were about 100 miles ſquare, the counties 25, and the townſhips ſix and a quarter?—A State of this magnitude, diviſions, and ſub-diviſions, would contain 16 counties, and each county 16 townſhips, making 256 townſhips in the whole; and if every townſhip was allowed to ſend a Repreſentative to a General Aſſembly, there would be 256 Legiſlators, beſides the Governors and Councillors, which would be an Aſſembly large enough for a Province or State.

It may be moſt convenient for Legiſlators to meet in the center of a province, the Judges in the center of a county, and people in the center of a town or pariſh, for the tranſaction of buſineſs, and the performance of religious worſhip.

I have obſerved, that where churches have been built remote from the centers of towns and pariſhes, it has been the cauſe of much diſturbance amongſt the inhabitants, becauſe ſome have had to travel a great way to get to church.

The

The highways in America ought to be at leaſt an hundred feet wide, and eſpecially where the ſnow falls deep; for where they are too narrow, they will be often filled to the tops of the fences when the ſnow is not more than eight inches deep upon a level; for the ſnow that is carried over one fence by the wind lodges againſt the other till the road is full, which endangers the lives of travellers, and proves a great hindrance to the tranſaction of buſineſs. Some are ſo ſtingy, that they will not allow a highway to be fenced wide enough, becauſe they ſuppoſe that they ſhall loſe the profits of their lands; but this is a miſtake, for the land in a highway will ſerve for a paſture for cattle, ſheep, &c. whilſt the people are freed from the labour and expence of fencing it.

I do not pretend to ſay, that every government, county, and townſhip, can be laid out exactly in the form that I have mentioned: I know that ſome places are almoſt ſurrounded by the ſea, as the peninſula on which the town of Boſton, in the Maſſachuſetts, is built, and many other places, where there is not room for a town of the bigneſs I have recommended; but where there is room, it will be beſt to lay them out in a regular form, &c.

But the globular form of the globe may, in ſome meaſure, interrupt my plan of laying out all the provinces, on a great continent, exactly ſquare; for ſome allowance ought to be made,

for the variation of the degrees of longitude in the different parallels of latitude.

Hence, if on the lat. of 40 degrees north, we ſhould meaſure 100 miles ſouth on the meridian of Philadelphia, and ſet up a boundary for the ſouth-eaſterly corner of a province, and ſhould meaſure 100 miles weſt to the ſouth-weſt corner, then exactly north 100 miles, and from thence to where we began, we ſhould find that the north line would not be ſo long as the ſouth by about $\frac{3}{10}$ of a mile, for the degrees of longitude are ſhorter in the northern than in ſouthern parallels of latitude. Vid. Tab. p. 75.

The kingdom of France is about 662 miles in length, from north to ſouth, and 620 in breadth, from eaſt to weſt; and ſince the late Revolution, the National Aſſembly have divided it into 80 grand diviſions, or counties, of 18 leagues in length, and as many in breadth; and each grand diviſion into 9 commonalties, which are 6 leagues ſquare; and alſo each commonalty into 9 cantons, of 2 leagues in length and 2 in breadth.

Hence there are 80 grand diviſions; 720 commonalties, and 6480 cantons. Each commonalty ſends one Repreſentative to the National Aſſembly. Hence alſo, as a French league is longer than an Engliſh, the cantons are about the bigneſs of the townſhips which I have recommended.

The following Table exhibits the different forms, &c. of the North-American Governments.

DIVISION

Names of States and Colonies.	*Length. Miles.*	*Breadth. Miles.*	*Chief Towns.*	*Latitude.* Deg.	Min.	*Longitude from Philadelphia.* Deg.	Min.		*Distance and bearing from Philadelphia,* *Miles.*	*Points.*
New Hampſhire	180	60	Portſmouth.	43	5	3	54	E.	408	N. E.
Maſſachuſetts	450	164	Boſton.	42	25	3	39	E.	343	N. E.
Rhode-Iſland	68	40	Newport.	41	30	3	24	E.	280	E. N. E.
Connecticut	81	57	Newhaven.	41	19	1	56	E.	181	N. E.
New-York	350	300	New-York.	40	40	1	5	E.	95	E. N. E.
New-Jerſey	160	52	Trenton,	40	15	0	23	E.	30	N. E.
Pennſylvania	288	156	Philadelphia.	39	56	0	0		0	——
Delaware	92	16	Dover.	39	10	0	25	W.	72	S. S. W.
Maryland	134	110	Annapolis.	39	2	1	37	W.	132	S. W.
Virginia	758	224	Richmond.	37	40	2	42	W.	276	S. W.
North-Carolina	758	110	Edenton.	36	4	1	25	W.	442	S. S. W.
South-Carolina	200	125	Charleſtown.	32	35	5	0	W.	814	S. S. W.
Georgia	600	250	Auguſta.	33	39	7	0	W.	934	W. S. W.
Vermont	155	60	Bennington.	42	42	1	44	E.	299	N. by E.
Weſtern Territory	1000	450	Adelphi.	39	34	6	30	W.	492	W.
Kentucky	including Virginia		Lexington.	38	25	10	0	W.	947	by Water W.
Province of Quebec	800	200	Quebec.	46	55	4	56	E.	690	N. N. E.
Nova Scotia	300	250	Halifax.	44	56	14	29	E.	925	N. E.
Eaſt and Weſt Floridas	600	130	St. Auguſtine.	29	51	6	30	W.	1146	S. S. W.
Louiſiana	indefinite		New Orleans.	29	57	14	40	W.	1646	S. W.
New Mexico	indefinite		St. Fee.	36	45	3	32	W.	2190	W.
California	765	212	St. Juan.	26	5	39	0	W.	3396	W. S. W.
Old Mexico	2700	250	Mexico.	20	0	26	0	W.	2021	S. W.

The diſtances of the capital towns from Philadelphia are reckoned as the roads run, and not according to the circles of Latitude and Longitude.

CHAP. XLIX.

Of Architecture.—How Cities, Churches, Houſes, &c. ought to be built.—Magnificent Edifices, the Seven Wonders of the World.—The Danger of living in open Houſes, and of Sleeping in New Plaiſtered Rooms.—Of the Vanity of Deſtroying Wood too faſt.—Directions concerning the Preſervation of Trees, and the Planting of Foreſts and Orchards.—How Priſons ſhould be Conſtructed, and Priſoners managed, to prevent the Generation of Malignant Diſtempers.

ARCHITECTURE was firſt carried to a tolerable high pitch by the Tyrians, the Greeks took it from them, the Romans from the Greeks, and the Engliſh from the Romans. The Romans firſt introduced the building with brick, and that of ſtone was brought into England A. D. 670. In 886, the Engliſh began to build with brick, but it did not become general in Great Britain till 1600, when the Earl of Arundel promoted it. This art, in many places, is brought to a high degree of perfection in the preſent age; though in others, the myſteries of it are much hidden

hidden in many reſpects, and buildings are frequently erected to diſadvantage, and the materials almoſt ſpoiled. I have obſerved in the great cities of London, Weſtminſter, Bath, Briſtol, Edinburgh, Glaſgow, Dublin, Paris, Philadelphia, and other cities in England, Scotland, Ireland, France, and America, that a great number of the houſes are almoſt ruined by reaſon of their being wrongly conſtructed. Rooms are frequently made ſo ſmall that they are very inconvenient, and numbers of the ſtreets are built ſo narrow, that it is dangerous paſſing, and eſpecially among teams, coaches, &c. Many of thoſe houſes ought to be taken down and rebuilt, with ſtreets 100 feet in breadth, laid out in a regular manner; but the faſhion of making ſuch narrow ſtreets ſeems to be wearing away in Great Britain, and elſewhere; for many houſes and other buildings have been taken down of late, the ſtreets made wider, and the buildings rebuilt in a more commodious form, which does honour to the Architects and others concerned in the work.

The wharfs in ſea ports, ought to be made wide; hence the buildings ſhould be erected at a diſtance, to leave room for the laying of lumber and other commodities.

When a city is built, the ſtreets ought to run ſtraight and at right angles with each other, and to be 100 feet wide; the ſquares betwixt them ſhould be about 40 rods each way: The houſes

ſhould

ſhould be built of brick or ſtone, and be four ſtories high, covered with ſlate, tyle, or lead, to ſecure them from the fire; and conductors ought to be erected to preſerve the buildings from being injured by the lightening. A dwelling houſe ought to be about 46 feet in length, and 38 in breadth, with a paſſage through the middle about 10 feet broad. The rooms ought to be at leaſt 18 feet long, 16 broad, and 9 or 10 feet high. The doors and windows, ought to be of a ſuitable length and breadth, and the chimneys ſhould be ſet againſt the middle of the rooms, and be drawn in, till the draught againſt the mantle piece, is very ſmall. If it ſhould be ſaid that a ſmall paſſage would obſtruct the ingreſs of the chimney ſweepers; I anſwer, that a back made of ſheet, or caſt iron, might be conſtructed and placed in ſuch a manner, as to anſwer all the intentions of one made of brick; and it might eaſily be taken out and replaced again, as occaſion may require. Then the draught ought to be made larger and larger, which will prevent the ſmoke from puffing out into the rooms; the force of the fire ſending it through a narrow paſſage will prevent its returning by the preſſure of the atmoſphere above; but remember, that the top of a chimney muſt be built upon a perpendicular over the fire-place, otherwiſe the ſmoke will deſcend into the room; for if it is obſtructed by turnings and windings, it will

will fly the wrong way, as it is as natural for ſmoke to fly upwards as it is for a ſtone to fall downwards; hence chimneys ſhould ſtand erect. Cities ought to be kept clean, and proper canals of water turned under them, to carry off the filth, and prevent the generation of diſeaſes. Churches, palaces, and other buildings, ought to be proportioned in ſuch a manner as to make them convenient, a large room ought not to be ſquare, but in the form of an oblong.

An Architect ought to be well ſkilled both in the theoretical and practical parts of the buſineſs. The theory demonſtrates how to plan out the work in proportions requiſite to form the fabric, and the practical, how to execute the buſineſs in the moſt expeditious and advantageous manner.

Architecture conſiſts of three different claſſes, as;

1. Civil; or the building of houſes, churches, colleges, temples, palaces, halls, bridges, porticos, &c. for the uſes of civil life.

2. Military; as fortifications, ramparts, &c. for defence againſt an enemy.

3. Naval; as the building of docks, and all kinds of veſſels to float on the water, with the works belonging to them.

The laws of nature taught the ancients to build houſes to ſcreen themſelves and families from the inclemency of the weather. It is ſaid, that before the Romans invaded England, the natives had no better lodgings than thickets, dens, and caves.

Some of thoſe caves were for winter habitations, and places of retreat in time of war. The Savages in America have followed much the ſame example, having lodged in dens and caves, among the rocks and mountains, like the wild beaſts, for the want of knowledge in Architecture.

We have an account in hiſtory, of many wonderful ſuperſtructures, as: 1. The tower of Babel, which was 40 years in building. 2. The walls of Babylon, which were 60 miles in circumference, 587 feet thick, and 1350 feet high; through the walls were 100 gates.

3. The Pyramids of Egypt, the largeſt of which covers 11 acres and a quarter of land, and is near 500 feet high.—4. Soloman's temple, which was adorned with gold and many ſplendid ornaments.

5. The wall of China, which is 1500 miles in length, and 30 feet high; and of many other noble ſtructures, edifices, and temples, which denote that Architecture ſhone forth with great luſture and perfection among the ancients, though perhaps, not with that ſplendor it does in the preſent age.

Authors diſagree ſo much in the accounts of the meaſures of antiquity, that it is difficult to determine what the dimenſions of ſome ancient buildings were, as ſome have taken one meaſure and ſome another, without telling us what meaſure they meant, whether it was Engliſh, Romiſh, &c. The following table ſhews the different feet that have

have been made uſe of among the nations, equivalent to 12 inches, Engliſh meaſure, being divided into 1000 equal parts.

Engliſh	1000
Romiſh	967
French	1068
Spaniſh	920
Venetian	1032
Rhinland	1033
Florentine	1913
Naples	2190
Cairo	1824
Turkiſh	2200

Hence it appears that a Turkiſh foot, is more than as long again as an Engliſh, and that the Romiſh and Spaniſh feet are ſhorter; but would it not be beſt to have the meaſures and weights alike through the world, if the nations would agree to it, as was before obſerved.

Every part of a building made of timber ought to be painted to prevent it from rotting, and to keep the doors and windows from ſwelling in wet weather. Wooden houſes well painted once in three years, will laſt a long time; but if they ſtand without paint, they will ſoon rot, and waſte away.

Some are at a great expence in adorning their buildings with ſplendid ornaments, ſuch as blank doors and windows, tablets, medallions, with bas

and

and alto relievos, ſtatues, buſts, niches, vaſes, enriched ceilings, mouldings, foliage, ruſtics, pilaſters, columns, arches, intercoluminations, baluſtrades, &c.

It is very dangerous to live in open houſes, or to ſleep in new plaiſtered rooms, for our bodies require a ſufficient degree of heat to keep their fluids in circulation. I was taught when I was young, that open rooms are the moſt healthy; but I found by my own obſervation, that that opinion is abſurd; for I have frequently obſerved, that where people have been obliged as it were to roaſt one ſide, whilſt the other was almoſt freezing, that they were often afflicted with colds, coughs, catarrhs, conſumptions, quinſies, pleuriſies, peripneumonies, and other diſorders, whilſt others, who had lived in warm rooms, have been free from thoſe complaints.

Many of the houſes in Canada are built of ſtone: their walls are about two feet thick; the rooms are large and are kept warm in winter with ſtoves, ſituated in ſuch a manner, as to warm every part of the rooms, and make the people comfortable in the remoteſt corner; but a ſmall quantity of fuel is expended, and the people were ſo remarkably healthy, that I could ſcarcely hear a perſon cough in a large congregation, whilſt the ſtoves were kept up; but when they were taken down, which happened in May or June, the rooms grew too damp and cold, and the inhabitants were

afflicted

afflicted with colds, coughs, and other diſorders of the lungs. Some who have ventured to ſleep in new plaiſtered rooms, have been found dead the next morning, owing to the coldneſs and dampneſs of the walls.

It is dangerous to ſtand ſtill, ſit, or ſleep, with the doors, or windows open; or where there are holes that let in the air, becauſe it will make people take cold; where they follow this practice in the ſhops and public houſes in London, I have heard the inhabitants complain of head aches, coughs, &c. whereas, if they would only keep their rooms tight and warm, they might be freed of thoſe complaints. But ſome have imbibed an opinion, that they draw more cuſtomers by keeping open doors, &c.

Some people have ſtoops or piazzas by the ſides of their houſes, where they frequently ſit in the open air and take cold, by having their perſpiration obſtructed by the cool breezes of the wind; but I diſapprove of this practice, unleſs the weather is very warm, calm, and pleaſant.

There are ſeveral orders of Architecture, all of which have their proportions as:

I. The Tuſcan, which is void of ornaments, and the moſt ſolid, and capable of bearing the heavieſt burthen.

II. The Doric, the next in ſtrength to the Tuſcan, which is the moſt ancient order in the world.

III. The

III. The Ionic; this is more ſplendid than the Doric, and has but few ornaments.

IV. The Corinthian, this has elegant proportions, adorned with ſplendid ornaments.

V. The Compoſite; this is only a ſpecies of the Corinthian order.

As it is not my deſign to be prolix upon any ſubject in the *American Oracle*, I ſhall not branch out largely upon Architecture, but conclude by obſerving, that an Architect ought to have ſo much geometrical and philoſophical knowledge, as to know how to chooſe the beſt materials, and conſtruct a building in the beſt manner. He ſhould ſee that the foundation he builds upon is good, the materials he builds with are ſound, and that the work is carried on with regularity in the building of towers, caſtles, houſes, temples, palaces, markets, theatres, amphitheatres, villages, towns, cities, ſtreets, wharfs, lanes, courts, &c.

The wars that have frequently broke out amongſt the nations, have been a great hindrance to the flouriſhing of Architecture, as well as to that of other arts and ſciences. Hence men of great learning and ingenuity have been ſlain, famous libraries burnt, elegant towns and cities laid waſte, and ſome arts wholly loſt; amongſt others, that of making cement, which is ſaid to be ſtronger than brick or ſtone. Had there not been any bloodſhed and devaſtation, and had the nations been

united in doing one another good inſtead of evil; and had the armies been employed in cultivating the land, in digging down mountains, filling up vallies, the building of bridges, towns, cities, &c. would it not have been much better for the inhabitants of the world? Would not the arts and ſciences have been brought to a higher degree of perfection, and the globe adorned and beautified with much more riches, ſplendor, and magnificence, collected and depoſited for the promotion of the happineſs of mankind, than at the preſent day?

I will juſt mention the ſeven wonders of the world, but had there been no wars, it is probable there would have been more than a thouſand wonders before this time. I will ſet them in their proper order, though ſome of them are already mentioned in this chapter.

1. The Pyramids of Egypt.

2. The Mauſoleum, or tomb built for Mauſolus, King of Caria, by Artemiſia his Queen.

3. The temple of Diana at Epheſus.

4. The walls and hanging gardens of Babylon.

5. The brazen image of the ſun at Rhodes, called the Coloſſus. It ſtood with one foot on one iſland, and the other on another, ſo high that a ſhip with its maſts and ſails up could ſail between its legs. It was ſhaken down by an earthquake 224 years before Chriſt.

6. The rich ſtatue of Jupiter Olympius.

7. The

7. The watch tower, built by Ptolemy Philadelphus, King of Egypt.

It is too much the practice in New England, and in ſome other places in America, to build houſes, barns, &c. of timber; but it would be much better to build with brick or ſtone, and to cover them with ſlate or tile, inſtead of ſhingles, as they would be warmer, more durable, and more ſecure from taking fire, which, though commonly a good ſervant, is ſometimes a bad maſter.

A room may be kept too warm, but this I alſo diſapprove, becauſe it may make people ſweat, melt the fluids, relax the ſolids, and lay a foundation for ſome dangerous malady. Thoſe who have ſat in a warm room ought to put on a cloak or great coat when they go into the open air, and eſpecially if the weather is very cold, or ſtormy.

There is a vanity which prevails in many parts of America that will make the future generations groan:—It is the rapid deſtruction of the wood, which is almoſt totally cut off in ſome new places, as well as in thoſe which have been ſettled a long time. In ſome places which have not been ſettled more then twenty or thirty years, ſcarce any thing is left either for fuel or timber. Hence future generations will be greatly pinched with the cold, and eſpecially in towns remote from pits of coal, which are very ſcarce in this part of the world, as

none have been diſcovered, excepting in Newfoundland, Louiſbourg, Nova Scotia, or New Brunſwick, and North Carolina, if I miſtake not. How diſtreſſing then muſt the condition of thoſe be who may live two or three hundred miles from any ſea port, or place where coal can be procured, when the trees are cut off and nothing can be had for fuel, or timber? they muſt of courſe be pinch-with the cold, and put to great difficulty in carrying on their cookery, &c.

People have been ſo greatly diſtreſſed already in ſome places in America, that they have been obliged to burn their barns, fences, and even their houſhold furniture, to keep from periſhing with the cold; and wood has been ſometimes ſo very ſcarce and dear at New-York, that it has been ſold for forty dollars, or nine pounds ſterling, per cord.

Therefore, for the prevention of ſuch calamities as much as poſſible, I will recommend,

1. The building of warm, tight houſes, with brick or ſtone.

2. The uſe of ſtoves, and the conſumption of a ſmall quantity of fuel.

3. The preſervation of trees already grown.

4. The planting and pruning of foreſts in places where they are wanted.

5. The raiſing of orchards, conſiſting of apple trees, pear-trees, peach-trees, plumb-trees, cherry trees, &c. which are beneficial both for fruit and fuel.

fuel. But perhaps large quantities of coal mines may be diſcovered in ſome future time in places where fuel may be wanted. Coals are very cheap and plenty in Scotland, and I believe it is as cheap keeping a fire there, as it is in America, where wood is plenty. They are alſo very plenty in London, but they are dear by reaſon of a duty which is laid upon them.

Farmers ought to have wood lots near their houſes, to keep their fuel houſed, and a good ſtock by them; and eſpecially in the Northern climates, where the ſnow ſometimes falls ſo deep, that the teams cannot travel to the foreſts.

Different kinds of ſtoves have been uſed in America. They are chiefly tight in the Northern Governments, that is, the fire is ſhut up ſo that it cannot be ſeen, unleſs a door is opened; they are chiefly made of ſheet or caſt iron. But I have ſeen an open kind of ſtoves at Philadelphia, which were invented by ſome body about ſixty miles weſterly of that city. They have been called Franklin's ſtoves, becauſe Dr. Franklin wrote upon their utility.

It has been ſaid, that one cord of wood will do as much good, and go as far in a ſtove, as four would in a chimney. Hence, ſtoves muſt be of great ſervice where ever they are uſed.

When the ſurrounding atmoſphere is colder than the rarified air in a room, it will ruſh in if the doors or windows are opened, and continue

ſo to do until an equilibrium is reſtored, and chill thoſe who have been warmed by the heat of a fire. But if the air in a room is colder than the atmoſphere, and the doors, &c. are opened, the cold air will expand itſelf into the warm until an equilibrium is reſtored that way.

I ſhall conclude this chapter by making ſome obſervations on Priſons, and the management of priſoners.

Priſons ought to be ſituated in places where the air is good; and ſtreams of water ought to be conveyed under them to keep them clean.

Various plans have lately been invented for the conſtruction of priſons, but it is not much matter how they are built, provided the apartments are convenient. The rooms ought to be large, and thoſe confined ought not to be too much crowded, becauſe it may breed diſtempers, which may cut down not only the priſoners, but ſpread to a great diſtance and almoſt depopulate the country. By chronology we are informed, that 300 perſons, at the aſſizes at Oxford, caught a gaol diſtemper, and died in 1577, and that many took the ſame diſtemper at the Old Bailey, in London, and died in 1750, &c.

Now we may reaſonably ſuppoſe, that this diſtemper was generated by the want of a proper air, a proper regimen, cloathing, and exerciſe, and by the priſoners being too much crowded, and that by their being thus infected by a contagion, it

was

was communicated to others when the priſoners were brought to trial before the the Courts of Juſtice.

The treatment that priſoners have met with in many parts of Chriſtendom in time paſt would diſgrace the moſt barbarous nations. Some have periſhed by being kept in pits and dungeons, ſome have loſt their lives by being pent up in narrow places, where they could not lie down, and by being crowded to death by the company. Some have been ſmothered till they have loſt their lives for the want of air, and ſome have periſhed with the cold, hunger, nakedneſs, and the like. Priſons about 100 feet in length, 50 in breadth, and three or four ſtories high, with entries, or paſſages about 10 feet wide, through the middle of each ſtory from end to end, would be very convenient, in my opinion. The apartments might then be made large, and the Priſon-keeper might eaſily convey to a conſiderable number of priſoners, thoſe things they daily need for their ſuſtenance. If a priſoner is taken ill, he ought to be kept in ſome apartment by himſelf to prevent the ſpreading of malignant diſorders; they ought to be kept clean and warm, and to uſe gentle exerciſe, and alſo to have a good and wholeſome diet.

Let men, or women, who may be confin'd,
Unto their mortal bodies be ſo kind,
As to take care that they *ſhun* ev'ry thing
Which may amongſt them bad *diſorders* bring

If they deſire in good health to abide,
Whilſt they're oblig'd in priſon to reſide,
Let this thing always in their mind remain,
That from intemp'rance they muſt all refrain:
Abſtain from drunk'neſs, anger, rage and ſtrife,
And aim to live an upright, ſteady life.
Read and diſcourſe with pleaſure and delight,
Both in the day, and in the ſilent night,
Go to bed early, ſee that ye ariſe
Nigh to the time the ſun does in the ſkies;
Waſh clean your face, comb out your matted hair,
And if need be, ſee that your nails ye pare:
Keep up your ſpirits, often talk and laugh,
And walk around, with, or without a ſtaff:
Tell pleaſant ſtories, make the air to ring,
With a loud voice, when ye attempt to ſing;
And often times, if you can get a chance,
Divert yourſelves with muſic, and a dance,
If you wou'd reſt and not live in a teaſe,
Deſtroy the bed bugs, kill off all the fleas;
From other vermin always mind and ſee
That ye at all times keep exceeding free.
Sweep oft your room, don't ſpit upon the floor,
And keep no dirt within the priſon door.
From all bad ſcents pray keep exceeding clear,
Leſt ſome deſtructive thing ſhou'd ſoon appear.
When noxious vapours float within the air,
And bad diſtempers ſpread both here and there,
Amongſt you let tobacco fumes ariſe,
Whoſe virtues are extoll'd unto the ſkies:

And

And vinegar burnt often in the day,
Is good to drive all noxious things away.
By what I've ſeen, I'm ſure I can inſiſt,
That putrefaction it will much reſiſt.
Another thing I alſo do deſire,
That in your room you'll keep a conſtant fire;
For it is good, *Philoſophers* declare,
To cleanſe and purify the ſtagnant air.
Of wholeſome things let all your food be made,
Go cleanly dreſſed, and mind what I have ſaid;
Leſt whilſt in priſon ye have to remain,
Deſeaſes ſpread 'till you by them are *ſlain*.
My beſt advice I freely thus do give,
And wiſh mankind in happineſs may live;
That honeſt priſoners always may be free
From illneſs, and be ſet at liberty:
And that at laſt they may come to the *ſhore*
Where *loathſome Priſons* ſhall *afflict* no *more*.

LONDON, *May* 14, 1791.

CHAP.

CHAP. L.

A ſhort Hiſtory of the RISE, SUFFERINGS, DOCTRINES, *and* DISCIPLINE *of the* FRIENDS, *commonly called* QUAKERS.

IN the beginning of the 17th century there were great diſſenſions in Great Britain reſpecting Religion; many who had been diſſatisfied with the ſettlement of the Church of England in the reign of Queen Elizabeth, diſſented, and formed themſelves into various ſocieties, ſome of whom evinced their ſincerity by grievous ſufferings, under the intolerance of thoſe who governed church affairs.

In thoſe times George Fox began to travel, and to preach the principles and doctrines which the Friends adhere to; as he travelled he met with divers who readily received his teſtimony, and ſeveral of them became preachers of the ſame doctrine; multitudes were afterwards converted, and many meetings were ſettled.

But many of theſe people were perſecuted on account of their religious ſentiments, by ſtripes, impriſonments, and other inhumanities.

George

George Fox, was one of the firſt of the Friends who was impriſoned. He was confined at Nottingham, in the year 1649. The next year he was brought before two Magiſtrates in Derbyſhire, where one of them ſcoffing at George Fox, for having bidden him and thoſe about him to *tremble at the word of the Lord*, gave thoſe people the name of *Quakers*, which appellation is retained to this day: But they have always called themſelves *Friends*.

The Friends ſuffered perſecution in England, in the days of Oliver Cromwell, and in the reign of King Charles II. but it does not appear that either Cromwell, or the King, was very ſevere againſt them. The perſecution was chiefly carried on by the Magiſtrates, and other barbarous and inhuman perſons of an inferior rank.

The firſt Friends that went to Boſton, in New-England, were women; at that place they were impriſoned and cruelly treated, this happened in 1656. The following year the ſcourge was employed, and a law was made for cutting off their ears, which was executed. They were afterwards ſubjected to baniſhment on pain of death, and three men and one woman were actually hanged. The Friends were alſo perſecuted in ſome of the other American Governments, but I believe not with ſuch ſeverity.

In 1661 Samuel Shattock, a baniſhed *Friend* from Boſton, obtained a mandamus from the King to return

return to Boſton as a Deputy, and put a ſtop to the ſeverities in New-England, which was accordingly done.

In 1664 ſixty of the Friends were tranſported from England to America, by an order of Council.

In 1672 King Charles II. releaſed about four hundred of the Friends from confinement. But after his death, as they were not protected by law, about fifteen hundred were impriſoned, by reaſon of the implacable malice of their old perſecutors.

About the year 1675 Robert Barclay wrote an apology in vindication of the principles and doctrines of the Friends, and preſented it to King Charles II.

In the reign of King James II. the operation of the penal laws againſt Diſſenters were ſuſpended, and the Friends were ſharers in the benefit. But it was not until the reign of King William that they obtained ſome degree of legal protection. In the reign of William and Mary, about the year 1696, an act was paſſed, which with a few exceptions, allowed to their affirmation the legal force of an oath, and provided a leſs oppreſſive mode of recovering tythes, under a certain amount: Thoſe proviſions were made perpetual in the reign of George I. and thus the Friends, in common with other Diſſenters, received the advantage of the act of toleration which had been paſſed in the year 1689. The Friends in Ireland alſo ſuffered perſecution, as well

well as thoſe in England, but when the act of toleration took place, they were relieved by law.

But though the friends have thus in a great meaſure been freed from perſecution, yet it is ſaid, that it is not wholly removed in Great Britain and Ireland, for they are ſtill liable to ſuffer in the Exchequer, and in the Eccleſiaſtical Court, in conſequence of their being required to help ſupport the national miniſtry. But the Friends in America are free from that burthen, as the people at preſent are not bound to ſupport ſuch a miniſtry. It appears by hiſtory, that the Friends were often greatly perſecuted, becauſe it was againſt their conſciences to kill their fellow mortals, and to take oaths before a magiſtrate, and that ſome of the prieſts have been very buſy in carrying on thoſe perſecutions.

About the year 1682, Pennſylvania was ſold by the Duke of York to the Penn family, and William Penn obtained a charter from the King for the ſettlement of that Government, into which many of the Friends were induced to remove. It ſoon became, and ſtill continues to be, the largeſt ſettlement of Friends in America; but many ſettled in other provinces and colonies.

In 1731, whilſt Jonathan Belcher, Eſq. was Governor of the Maſſachuſetts, an act of the Aſſembly was paſſed, which exempted the Friends in that province from contributing to the ſupport of the public miniſtry; and they enjoyed a great

ſhare of tranquillity in this and the other Governments, until the war commenced, which terminated in the ſeparation of the United States from the dominion of Great-Britain.

During thoſe commotions, they were involved in great trouble, by refuſing to join in the military ſervices which were required of them; many were impriſoned in divers Governments, and ſeveral ſuffered death at Philadelphia by reaſon of the war. Great numbers were reduced from circumſtances of eaſe, if not of affluence, to the verge of want, by the exceſſive ſeizures which were frequently made of their property, to recover the fines impoſed on them, for refuſing to ſerve perſonally, or to ſubſtitute others, to join the continental armies.

I have extracted the greateſt part of this ſhort account from various authors, but principally from a pamphlet lately publiſhed in London. I have, however, added a few things that I knew myſelf, and ſeveral which I received from perſons of good repute. Thoſe who may be deſirous of further information, are directed to read Sewell's Hiſtory, Edmondſon's Journal, and Rutty's Hiſtory, concerning the perſecutions the Friends have endured by reaſon of their religious ſentiments.

DOCTRINE.

DOCTRINE.

The Friends believe in one eternal God, the Creator, and Preſerver of the Univerſe: and in Jeſus Chriſt, his Son, the Meſſiah, and Mediator of the New Covenant. Vid. Heb. xii. 24.

When they ſpeak of the gracious diſplay of the love of God to mankind, in the miraculous conception, birth, life, miracles, death, reſurrection, and aſcenſion of Chriſt, they prefer the uſe of ſuch terms as they find in the Scriptures, and are contented with that knowledge which Divine wiſdom hath ſeen meet to reveal; and though they do not attempt to explain thoſe myſteries which remain under the VEIL; yet they acknowledge and aſſert the divinity of Chriſt, who is the wiſdom and power of God unto ſalvation. Vid. 1 Cor. i. 24.

To Chriſt alone they give the title of the word of God. Vid. John i. 1. and not to the Scriptures, although they highly eſteem thoſe Sacred Writings, in ſubordination to the Spirit. 2 Pet. i. 21. from which they were given forth; and they hold with the Apoſtle Paul, that they are able to make wiſe unto ſalvation, through faith, which is in Chriſt Jeſus. Vid. 2 Tim. iii. 15.

They reverence thoſe moſt excellent precepts which are recorded in Scripture, and believe they were delivered by our Great Lord; that they are practicable, and binding on every Chriſtian; and

that in the life to come, every man will be rewarded according to his works. Vid. Matt. xvi. 27.

Of Univerſal and Saving Light.

That in order to enable mankind to put in practice thoſe ſacred precepts, many of which are contradictory to the unregenerate will of man, Vid. John i. 9, Every man coming into the world is endued with a meaſure of the light, and grace, or good ſpirit of Chriſt; by which he is enabled to diſtinguiſh good from evil, and to correct the diſorderly paſſions and corrupt propenſities of his nature, which mere reaſon is altogether inſufficient to overcome. For all that belongs to man is fallible and within the reach of temptation; but this divine grace, which comes by him who hath overcome the world, John xvi. 33, is, to thoſe who humbly and ſincerely ſeek it, an all ſufficient and preſent help in time of need. By this the ſnares of the enemy are detected, his allurements avoided, and deliverance is experienced though faith in its effectual operation, whereby the ſoul is tranſlated out of the kingdom of darkneſs, and from under the power of Satan, into the marvellous light and kingdom of the ſon of God.

Of

Of Worſhip.

The Friends being thus perſuaded that man, without the ſpirit of Chriſt inwardly revealed, can do nothing to the glory of God, or to effect his own ſalvation, they think this influence eſpecially neceſſary to the performance of the higheſt act of which the human mind is capable, even the worſhip of the Father of lights and of ſpirits, in ſpirit and in truth; therefore, they conſider as obſtructions to the pure worſhip, all forms which divert the attention of the mind from the ſecret influence of this unction from the Holy One. Vid. 1 John ii. 20, 22. Yet, although the true worſhip is not confined to time and place, they think it incumbent on Chriſtians to meet often together, (vid. Heb. x. 25,) in teſtimony of their dependence on the Heavenly Father, and for a renewal of their ſpiritual ſtrength; nevertheleſs, in the performance of worſhip, they dare not depend, for their acceptance with him, on a formal repetition of words and experiences of others; but they believe it to be their duty to ceaſe from the activity of the imagination, and to wait in ſilence, to have a true ſight of their condition beſtowed upon them; believing even a ſingle ſigh, (vid. Rom. viii.) 26, ariſing from ſuch a ſenſe of their infirmities, and of the need they have of Divine help, to be more acceptable

to God, than any performances, however ſpecious, which originated in the will of man.

Of the Miniſtry.

From the opinion the Friends are of concerning worſhip, it follows, that the miniſtry which they approve muſt have its origin from the ſame ſource; for that which is needful for a man's own direction, and for his acceptance with God, (vid. Jer. xxiii, 30, to 32,) muſt be eminently ſo to enable him to be helpful to others. Accordingly they believe the renewed aſſiſtance of the light and power of Chriſt, to be indiſpenſably neceſſary for alltrue miniſtry; and that their holy influence is not at their command, or to be procured by ſtudy, but is the free gift of God to his choſen and devoted ſervants. From hence ariſes their teſtimony againſt preaching for hire, and in contradiction to Chriſt's poſitive command, "Freely ye have received, freely give." Vid. Matt. x. 8, And hence alſo ariſes their conſcientious refuſal of ſupporting ſuch a miniſtry by tithes, &c.

Of the Preaching of Women.

As the Friends dare not encourage any miniſtry, but that which they believe to ſpring from the influence of the Holy Spirit, ſo neither dare they attempt to reſtrain this influence to perſons of any condition

condition in life, or to the male ſex alone; but, as the male and female are one in Chriſt, they allow ſuch of the female ſex as they believe to be endued with a right qualification for the miniſtry, to exerciſe their gifts for the general edification of the church; and this liberty they eſteem to be a peculiar mark of the Goſpel diſpenſation, as foretold by the Prophet Joel. Vid. Joel ii. 28, 29, and noticed by the Apoſtle Peter. Acts ii. 16, 17.

Of Baptiſm and the Supper.

There are two ceremonies in uſe amongſt moſt profeſſors of the Chriſtian name, viz. water Baptiſm, and what is termed the Lord's Supper; the firſt of theſe being generally eſteemed the eſſential means of an initiation into the church of Chriſt; and the latter of maintaining communion with him. But as the Friends have been convinced, that nothing ſhort of his redeeming power, inwardly revealed, can ſet the ſoul free from the thraldom of ſin, it is by this power alone that they believe ſalvation can be effected. And they hold that as there is one Lord and one Faith, (vid. Eph. iv. 5,) ſo Baptiſm is one in nature and operation; that nothing ſhort of it can make us living members of his myſtical body; and that the Baptiſm with water, adminiſtered by his forerunner John, belonged, as the latter confeſſed, to

an inferior and decreasing dispensation. Vid. John iii. 30.

With respect to the other rite, they believe that communion between Christ and his church is not maintained by that, nor any other external performance, but only by a real participation of his Divine nature through faith, vid. 2. Pet. i. 4; that this supper is alluded to in Revelation. Vid. Rev. iii. 20. "Behold I stand at the door and knock, "if any man hear my voice, and open the door, "I will come in to him, and will sup with him, "and he with me." And that where the substance is obtained, it is unnecessary to attend to the shadow, which doth not confer grace, concerning which different opinions and violent animosities have arisen amongst other professors of the Christian religion.

Of Universal Grace and Perfection.

As they thus believe that the grace of God, which comes by Jesus Christ, is alone sufficient for salvation, they can neither admit that it is conferred on a few only, whilst others are left without it; nor, thus asserting its universality, can they limit its operation to a partial cleansing of the soul from sin, even in this life. They entertain worthier notions both of the power and goodness of our Heavenly Father, and believe that he doth

doth vouchſafe to aſſiſt the obedient to experience a total ſurrender of the natural will to the guidance of his pure unerring ſpirit, through whoſe renewed aſſiſtance they are enabled to bring forth fruits unto holineſs, and to ſtand perfect in their preſent rank. Vid. Matt. v. 48. Eph. iv. 13. Col. iv. 12.

Of Oaths and War.

There are not many of their tenets more generally known than their teſtimony againſt oaths and war. With reſpect to the former of theſe, they abide literally by Chriſt's poſitive injunction, delivered in his ſermon on the Mount, viz. "Swear not at all." Vid. Matt. v. 34. From the ſame ſacred collection of the moſt excellent precepts of moral and religious duty from the example of our Lord himſelf, (Matt. xxxix. 44, &c. Chap. xxvi. 52, 53. Luke xxii. 51. John xviii. 11.) and from the correſpondent conviction of his ſpirit in their hearts, they are confirmed in the belief that wars and fightings are, in their origin and effects, utterly repugnant to the Goſpel, which ſtill breathes peace and good will to men. They are alſo clearly of the judgment, that if the benevolence of the Goſpel was generally prevalent in the minds of men, it would effectually prevent them from oppreſſing, much more from enſlaving, their brethren, (of whatſoever colour or com-

plexion) for whom as for themſelves, Chriſt died; and would even influence their conduct in their treatment of the brute creation, which would no longer groan the victims of their avarice, and of their falſe ideas of pleaſure.

Of Government.

Some of the tenets which the Friends profeſſed, ſubjected their friends in former times to much ſuffering from Government, though as to the ſalutary purpoſes of Government, their principles are a ſecurity. They inculcate ſubmiſſion to the laws in all caſes where in conſcience is not violated; but they hold that as Chriſt's kingdom is not of this world, it is not the buſineſs of the Civil Magiſtrate to interfere in matters of religion, but to maintain the external peace and good order of the community. They therefore think perſecution even in the ſmalleſt degree, unwarrantable. Hence they are careful in requiring their members not to be concerned in illicit trade, nor in any manner to defraud the revenue.

Of their Deportment.

Their ſociety from their firſt appearance has diſuſed thoſe names of the months and days, which having been given in honour of the heroes or falſe gods of the Heathens, originated in their flattery and

and ſuperſtition; and the cuſtom of ſpeaking to a ſingle perſon in the plural number, as having ariſen alſo from motives of adulation. Compliments, ſuperfluity of apparel and furniture, outward ſhews of rejoicing and mourning, and obſervation of days and times, they eſteem to be incompatible with the ſimplicity and ſincerity of a Chriſtian life; and public diverſions, gaming, and other vain amuſements of the world, they cannot but condemn; they are a waſte of that time which is given to us for nobler purpoſes, and divert the attention of the mind from the ſober duties of life, and from the reproofs of inſtruction, by which we are guided to an everlaſting inheritance.

Thus have I given a general deſcription of the tenets which the Friends adhere to. They believe however that a true and living faith is not produced in the mind of man by his own effort, but that it is the free gift of God, (vid. Eph. ii. 8.) in Chriſt Jeſus, nouriſhed and increaſed by the progreſſive operation of the Holy Spirit in his heart, and his proportionate obedience. Vid. John vii. 17. Therefore, although, for the preſervation of the teſtimonies given them to bear, and for the peace and good order of their ſociety, they deem it neceſſary that thoſe who are admitted into membership with them, ſhould be previouſly convinced of thoſe doctrines which are eſteemed eſſential; but they require no formal ſubſcription to any articles,

either as a condition of membership, or as a qualification for the service of their church.—They prefer the judging of men by their fruits, in a dependance on the aid of him who, by his Prophet, hath promised to be "a spirit of judgment to him that sitteth in judgment." Vid. Isai. xxviii. 6; that without this, there is danger of receiving numbers into the outward communion, without any addition to the spiritual sheepfold, whereof Christ declared himself to be both the door and shepherd. Vid. John x. 7, 11. that is, such as know his voice, and follow him in the paths of obedience.

Of their Discipline.

Their discipline consists chiefly in relieving the poor, the maintenance of good order, the support of the testimonies which they believe is their duty to bear to the world, and the help and recovery of such as are overtaken in faults.

In the practice of their discipline, they think it is indispensibly necessary that the order recommended by Christ himself be invariably observed: Vid. Matt. xviii. 15, 17. "If thy brother shall "trespass against thee, go and tell him his fault be-"tween thee and him alone: if he shall hear thee, "thou hast gained thy brother; but if he will not "hear thee, then take with thee one or two more, "that inthe mouth of two or three witnesses, every "word

"word may be eſtabliſhed; and if he ſhall neglect "to hear them, tell it unto the church."

Of their Meetings for Diſcipline.

To effect the ſalutary purpoſes of diſcipline, meetings were appointed at an early period of the ſociety, which from the times of their being held were called quarterly meetings. It was afterwards found expedient to divide the diſtricts of thoſe meetings, and to meet more often; from hence aroſe their monthly meetings, ſubordinate to thoſe held quarterly. At length, in 1669, a yearly meeting was eſtabliſhed, to ſuperintend, aſſiſt, and provide rules for the whole; previous to which, generally meetings had been occaſionally held.

Of their Monthly Meetings, Poor, convinced Perſons, Certificates of Removal, Overſeers, and Mode of dealing with Offenders.

A monthly meeting is commonly compoſed of ſeveral particular congregations, ſituated within a convenient diſtance of each other, and where this is the caſe, it is uſual for the members of each congregation to form what is called a preparative meeting, becauſe its buſineſs is to prepare whatever may occur among themſelves to be laid before the monthly meeting. Their buſineſs at the monthly meeting is to provide for the ſubſiſtence of the poor, and for the education of their children; to judge of the ſincerity and fitneſs of perſons

ſons appearing to be convinced of the truth of the religious principles of the ſociety, and deſiring to be admitted into membership; to excite due attention to the diſcharge of religious and moral duties, and to deal with diſorderly members.

When any have made application to become members of the ſociety; a ſmall committee is appointed to viſit the party, and make a report to the monthly meeting; which is directed not to admit any into membership, without allowing a ſeaſonable time to conſider of their conduct.

At the monthly meetings the Friends alſo grant to ſuch of their members as remove into other monthly meetings, certificates of their membership and conduct, without which they cannot gain membership in ſuch meetings.

Each monthly meeting is required to appoint certain perſons, under the name of *Overſeers*, who are to take care that the rules of their diſcipline is put in practice; and when any account of diſorderly conduct comes to their knowledge, they are to ſee that private admonition, agreeable to the Goſpel rule before-mentioned, is given, previouſly to its being laid before the monthly meeting.

When a caſe is introduced, it is uſual for a ſmall committee to be appointed to viſit the offender, in order to endeavour to convince him of his error, and induce him to forſake and condemn it if they ſucceed, the tranſgreſſor generally ſigns a written

a written acknowledgment, and he is by a minute declared to have made ſatisfaction for the offence; if not, he is diſowned as a member of the ſociety. This is done by what is termed a teſtimony of denial, which is a paper reciting the offence, and ſometimes the ſteps which have led to it; next, the means unavailingly uſed to reclaim the offender; after that, a clauſe diſowning him; to which is uſually added, an expreſſion of deſire for his repentance, and for his being reſtored to membership.

It has long been the decided judgment of the ſociety that its members ſhall not ſue each other at law; hence whence diſputes ariſe between individuals, they are ſettled by arbitrators; and if any refuſe to adopt this mode, or, having adopted it, to ſubmit to the award, it is the direction at the yearly meeting, that ſuch ſhall be diſowned.

Of Marriages, Births and Burials.

The allowance of marriages alſo belongs to the Friends monthly meetings; for their ſociety has always ſcrupled to acknowledge the excluſive authority of the prieſts in the ſolemnization of marriage. Thoſe who intend to marry appear together, and propoſe their intention to the monthly meeting, and if not attended by their parents or guardians, produce a written certificate of their conſent, ſigned in the preſence of witneſſes. The meeting

meeting then appoints a committee to inquire whether they are clear of other engagements reſpecting marriage; and if at a ſubſequent meeting, to which the parties alſo come and declare the continuance of their intention, and no objections are reported, they have the meeting's conſent to ſolemnize their intended marriage. This is done in a public meeting for worſhip, towards the cloſe whereof the parties ſtand up, and ſolemnly take each other for huſband and wife. I was once preſent at one of their weddings, in America, where the man took the woman by her right hand, and uttered the following words before the meeting, as near as I can remember.

"*Friends, bear witneſs; I Thomas H——d, take this my friend, Nancy R——d, to be my kind and loving wife; and I promiſe, through the aſſiſtance of Divine Grace, to conduct towards her like a kind and loving huſband, till by death we are ſeparated.*"

She then took him by the right hand, and cried, "*Friends, bear witneſs, I Nancy R——d, do take this my friend Thomas H——d, to be my kind and loving huſband; and I promiſe, through the aſſiſtance of Divine Grace, to conduct towards him, like a kind and loving wife, till by death we are ſeparated.*"

A certificate of the proceedings was then publicly read by the clerk of the meeting, and ſigned by the parties, and afterwards by the relations, and others as witneſſes. Of ſuch certificates the monthly meeting keeps a record; as alſo of the births

births and burials of its members. A certificate of the date, of the name of an infant, and of its parents, ſigned by thoſe preſent at the birth, is the ſubject of one of theſe laſt mentioned records; and an order for interment, counterſigned by the grave-maker, of the other. The naming of children is without ceremony. Burials are alſo conducted in a ſimple manner. The body, followed by the relations and friends, is ſometimes previous to interment carried to a meeting, and at the grave, a pauſe is generally made; on both which occaſions it frequently falls out, that one or more of the Friends preſent have ſomewhat to expreſs for the edification of thoſe who attend: but no religious rite is conſidered as an eſſential of a burial.

Of Quarterly Meetings, Queries, and Appeals.

Several monthly meetings compoſe a quarterly meeting. At the latter are produced written anſwers from the monthly meetings, to certain queries concerning the conduct of their members, and the meeting's care over them. The accounts thus received, are digeſted into one, which is ſent alſo in the form of anſwers to queries, by repreſentatives, to the yearly meeting.—Appeals from the judgment of monthly meetings are brought to the quarterly meetings; whoſe buſineſs alſo it is to aſſiſt in any difficult caſe, or where remiſſneſs

appears

appears in the care of the monthly meetings over the individuals who compoſe them.

Of Yearly Meetings.

The annual meeting has a general ſuperintendance of the ſociety in the country in which it is eſtabliſhed; and therefore as the accounts which it receives diſcover the ſtate of inferior meetings, as particular exigencies require, or as the meeting is impreſſed with a ſenſe of duty, it gives forth its advice, makes ſuch regulations as appear to be requiſite, or excites to the obſervance of thoſe already made; and ſometimes appoints committees to viſit thoſe quarterly meetings which appear to be in need of immediate help. Appeals from the judgment of the quarterly meetings are here finally determined; and brotherly correſpondence, by epiſtles, is maintained with other quarterly meetings.

According to an account I have lately received in London, there are ſeven yearly meetings, which are held at the following places, viz.

1. London.
2. New England.
3. New York.
4. New Jerſey, and Pennſylvania.
5. Maryland.
6. Virginia.
7. The Carolinas, and Georgia.

Hence, according to this account, the four New England governments compoſe one meeting; New York another; New Jerſey, and Pennſylvania another, &c.

The annual meeting is held at London, in the fifth month of this preſent year, 1791. To this meeting repreſentatives come from Ireland, and from other parts of the world. Annual meetings have been held in almoſt every government of the United States of America, but as the times of their ſitting are often altered, I ſhall not ſay any thing further on the ſubject.

Of Women's Meeting.

As the Friends believe that women may be rightly called to the work of the miniſtry, they alſo think, that to them belongs a ſhare in the ſupport of their Chriſtian diſcipline; and that ſome parts of it, wherein their own ſex is concerned, devolve on them with peculiar propriety. Accordingly they have monthly, quarterly, and yearly meetings of their own ſex, held at the ſame time and in the ſame place with thoſe of the men; but ſeparately, and without the power of making rules: and it may be remarked, that during the perſecutions, which in the laſt century occaſioned the impriſonment of ſo many of the men, the care of the poor often fell on the women, and relief was by them ſatisfactorily adminiſtered.

Of

Of the Meeting of Miniſters and Elders.

Thoſe who believe themſelves required to ſpeak in the meetings for worſhip, are not immediately acknowledged as miniſters by their monthly meetings; but time is taken for judgment, that the meeting may be ſatisfied of their call and qualifications. It will alſo ſometimes happen, that ſuch as are not approved, will obtrude themſelves as miniſters to the grief of their brethren; but much forbearance is uſed towards theſe, before the diſapprobation of the meeting is publicly teſtified. But in order that thoſe who are in the ſituation of approved miniſters, may have the tender ſympathy and counſel of either ſex, who by their experience in the work of religion, are qualified for that ſervice, the monthly meetings are adviſed to ſelect ſuch, under the denomination of elders. Theſe, and miniſters approved by their monthly meeting, have meetings peculiar to themſelves, called meetings of miniſters and elders, in which they have an opportunity of exciting each other to a diſcharge of their ſeveral duties; of extending their advice to thoſe who may appear weak, without any needleſs expoſure. Theſe meetings are generally held in the compaſs of each monthly, quarterly, and yearly meeting. They are conducted by rules preſcribed by the yearly meeting, and have no authority to make

any

any alteration or addition to them. Theſe members unite with their brethren in the meetings for diſcipline, and are accountable to the latter for their conduct.

Of the Second Day, Morning Meeting.

It is to a meeting of this kind held in London, that the reviſal of manuſcripts intended for publication concerning their principles, is intruſted by the yearly meeting held in the ſame place, and alſo the granting, on the intervals of the yearly meeting, certificates of approbation to ſuch miniſters as are inclined to travel in the work of the miniſtry in foreign parts. When a viſit of this kind does not extend beyond Great Britain, a certificate from the monthly meeting, of which the miniſter is a member is ſufficient; if to Ireland, the concurrence of the quarterly meeting is alſo required. Regulations of a ſimilar tendency obtain in other yearly meetings.

Meetings for Sufferings.

The yearly meeting held in London, in the year 1675, appointed a meeting to be held in that city, for the purpoſe of adviſing and aſſiſting, in caſes of ſuffering for conſcience ſake, which hath continued with great uſe to the ſociety to this day. It is compoſed of Friends, under the name of cor-

reſpondents, choſen by the ſeveral quarterly meetings, and who reſide in, or near the city. The ſame meetings alſo appoint members of their own in the country as correſpondents, who are to join their brethren in London on emergency. The names of ſome of the correſpondents, previous to their being recorded as ſuch, are ſubmitted to the approbation of the yearly meeting. Thoſe of the men, who are approved miniſters, are alſo members of this meeting, which is called the meeting for ſufferings; a name ariſing from its original purpoſe, which is not yet become entirely obſolete.

The yearly meeting has intruſted the meeting for ſufferings with the care of printing and the diſtribution of books, and with the management of its ſtock, which is collected by an occaſional voluntary contribution, and expended in printing books, houſe-rent for a clerk, and his wages for keeping records, the paſſage of miniſters who viſit their brethren beyond the ſea, and ſome ſmall incidental charges.

The Committee that has the care of this ſtock, &c. is conſidered as a ſtanding Committee for the yearly meeting; and hath a general care of whatever may ariſe, during the intervals of that meeting, which affect the ſociety, and require immediate attention; particularly of thoſe circumſtances which may occaſion an application to government.

There

There is not any Preſident in any of their meetings, as they believe that Divine wiſdom alone ought to preſide; nor has any member a right to claim pre-eminence over the reſt. The office of Clerk, with a few exceptions, is undertaken voluntarily by ſome member, as is alſo the keeping of records. Where theſe are very voluminous, and require a houſe for their depoſit, (as is the caſe in London, where the general records of the ſociety in Great Britain are kept) a clerk is hired to have the care of them; but except a few clerks of this kind, and perſons who have had the care of meeting houſes, none receive any ſtipend or gratuity for their ſervices in a religious ſociety.

Concluſion.

Thus have I given a ſhort account of the riſe, ſufferings, doctrines, and diſcipline of the Friends, the greateſt part of which I have extracted from their own publications. They are a very civil, induſtrious, and honeſt people; and as they do not harraſs one another with law ſuits, are very temperate, avoid ſuperfluities, and thoſe vanities and follies, which are too much followed by many others who are called Chriſtians, they commonly grow rich, or, at leaſt, get a comfortable ſubſiſtence. They are hoſpitable to ſtrangers, kind to the poor, promoters of brotherly love, and of the

public tranquillity; and they augment the national revenue, as they pay their taxes, and refuse to run goods, or to buy any that have been run. Would not the world be almoſt a *paradiſe*, if all the people would follow the example of the Friends, in walking *honeſtly*, and in living *peaceably*?

CHAP.

CHAP. LI.

An Account of the Moravians.

THE Moravians are a ſect of Proteſtants called *Unitas Fratrum*; or the United Brethren. They appeared in Bohemia, in the year 1457; and have been ſettled a long time at Hernhuth, in Germany. In 1737, there were ſome in England, but of late years they have ſpread themſelves over many parts of America. They poſſeſs the utmoſt veneration for our Bleſſed Saviour, whom they conſider as their immediate head and director; they alſo enjoin the moſt implicit obedience to the rules of their church, and are ſaid to practiſe much brotherly love amongſt one another. The ſubſtance of the conſtitution of their church, dated in the year 1733, at Hernhuth, in Upper Saxony, in Germany, is as follows, viz.

1. They have a *Senior*, or *Eldeſt*, who is to aſſiſt the church by his counſel and prayers, and to determine what ſhall be done in matters of importance. Of him is required, that he be well experienced in the things of God, and witneſſed by all for holineſs of converſation.

2. They have *Deacons*, or *Helpers*, who are in private aſſemblies to inſtruct: To take care that outward things are done decently and in order; and to ſee that every member of the church grows in grace, and walks ſuitable to his holy calling.

3. The *Paſtor*, or *Teacher*, is to be an overſeer of the whole flock, and every perſon therein; to baptize the children; diligently to form their minds, and bring them up *in the nurture and admonition of the Lord:* When he finds in them a ſincere love of the croſs, then to receive them into the church: to adminiſter the ſupper of the Lord: To join in marriage thoſe who are already married to Chriſt: To reprove, admoniſh, quicken, and comfort, as need requires: To declare the whole counſel of God: Taking heed at all times to ſpeak as the oracles of God, and agreeably to the analogy of faith: To bury thoſe who have died in the Lord, and to keep that ſafe which is committed to his charge, even the pure doctrine and apoſtolical diſcipline which they have received from their forefathers.

4. They have alſo another ſort of *Deacons* who take care that nothing be wanting to the *orphan-houſe*, to the poor, the ſick, and the ſtrangers. Others again there are, who are peculiarly to take care of the ſick; and others, of the poor. And two of theſe are intruſted with the public ſtock, and keep accounts of all that is received or expended.

5. There

5. There are women who perform each of the above-mentioned offices, among thoſe of their own ſex: For none of the men converſe with them, beſide the eldeſt, the teacher, and one, or ſometimes two of the Deacons.

6. Towards magiſtrates, whether of a ſuperior or inferior rank, they bear the greateſt reverence, and chearfully ſubmit to their laws; and even when many of them have been ſpoiled of their goods, driven out of their houſes, and every way oppreſt by them, yet they reſiſted them not, neither opened their mouths, nor lifted up a hand againſt them. In all things which do not immediately concern the inward ſpiritual kingdom of Chriſt, they ſimply, and without contradicting, obey the higher powers. But with regard to conſcience, the liberty of this they cannot ſuffer to be any way limited or infringed. And to this head they refer whatever directly and in itſelf tends to hinder the ſalvation of ſouls: Or, whatſoever things Chriſt and his holy apoſtles (who meddled not with outward worldly things) took charge of, and performed, as neceſſary for the conſtituting and well-ordering of his church. In theſe things they acknowledge no head but Chriſt; and are determined, God being their helper, to give up not only their goods but life itſelf, rather than the liberty which God hath given them.

7. As it behoves Chriſtians not to be *ſlothful in buſineſs*, but diligently to attend to the works of

their calling, there are perſons choſen by the church, to ſuperintend all thoſe who are employed in outward buſineſs. And by this means alſo, many things are prevented which might otherwiſe be an occaſion of offence.

8. They have alſo *Cenſors* and *Monitors*; of thoſe experience and perſpicacity, wiſdom and modeſty are chiefly required. The *Cenſors* ſignify what they obſerve (and they obſerve the ſmalleſt things) either to the *Deacons* or *Monitors*. Some *Monitors* there are, whom all know to be ſuch; others who are ſecretly appointed; and who, if need require may freely admoniſh in the love of Chriſt, even the rulers of the church.

9. The church is ſo divided, that firſt the huſbands, then the wives, then the widows, then the maids, then the young men, then the boys, then the girls, and laſtly the little children, are in ſo many diſtinct claſſes: each of which is daily viſited, the married men by a married man, the wives by a wife, and ſo of the reſt.* The larger are alſo divided into ſmaller claſſes, or bands, over each of which one preſides who is of the greateſt experience. All theſe leaders meet the ſenior every week, and lay open to him and to the Lord, whatſoever hinders or furthers the work of God, in the ſouls committed to their charge.

* This work all the married brethren and ſiſters, as well as all the unmarried, perform in their turns.

10. In

10. In the year 1727, four and twenty men and as many women agreed, that each of them would ſpend an hour in every day, in praying to God for his bleſſing on his people; and for this purpoſe both the men and women choſe a place, where any of their own ſex who were in diſtreſs, might be preſent with them. The ſame number of unmarried women, of unmarried men, of boys, and of girls, were afterwards, at their deſire, added to them, who pour out their ſouls before God, not only for their own brethren, but alſo for other churches and perſons, that have deſired to be mentioned in their prayers. And this perpetual interceſſion has never ceaſed, day or night, ſince its firſt beginning.

11. And as the members of the church are divided, according to their reſpective ſtates and ſexes: ſo they are alſo, with regard to their proficiency in the knowledge of God. Some are dead, ſome are quickened by the ſpirit of God: Of theſe, ſome again are untractable, ſome diligent, ſome zealous, burning with their firſt love; ſome babes, and ſome young men. Thoſe who are ſtill dead, are viſited every day. And of the babes in Chriſt eſpecial care is taken alſo, that they may be daily inſpected and aſſiſted to grow in grace, and in the knowledge of our Lord Jeſus.

12. In the *orphan-houſe*, a number of children are brought up, ſeparate according to their ſex. Beſide which, ſeveral experienced perſons, appointed

pointed to conſult with the parents, touching the education of the other children. In teaching them Chriſtianity, they make uſe of Luther's Catechiſm, and ſtudy the amending of their wills as well as their underſtanding; finding by experience, that when their will is moved, they often learn more in a few hours, than otherwiſe in many months. Their little children they inſtruct chiefly by hymns; whereby they find the moſt important truths moſt ſucceſsfully inſinuated into their minds.

13. They highly reverence marriage, as greatly conducive to the kingdom of Chriſt. But neither their young men nor women enter into it till they aſſuredly know, they are married to Chriſt. When any know it is the will of God, that they ſhould change their ſtate, both the man and woman are placed for a time, with ſome married perſons, who inſtruct them how to behave, ſo that their married life may be pleaſing to God. Then their deſigns are laid before the whole church, and after about fourteen days, they are ſolemnly joined, tho' not otherwiſe habited, than they are at other times. If they make any entertainment (which is not always) they invite only a few intimate friends, by whoſe faithful admonitions they may be the better prepared to bear their croſs, and fight the good fight of faith. If any woman is with child, mention is made of her condition in the public prayers, and ſhe is alſo exhorted in private, wholly to give herſelf up into the hands of her faithful

faithful Creator. As ſoon as a child is born, prayer is made for it, and if it may be, it is baptiſed in the preſence of the whole church. Before it is weaned, it is brought into the aſſembly on the Lord's Day.

14. Whoever either of the male or female children ſeek God with their whole heart, know their ſins are forgiven, and obey the truth, are not uſed to be much incited to come to the Lord's ſupper; neither are they forbidden ſo to do, if they deſire it. They think it enough to teach their children juſt conceptions of it, and the difference between this food of the ſoul, and that milk which they every day receive of Chriſt. They then publicly declare the ſentiments of their hearts concerning it. They are afterwards examined both in private by the paſtor, and alſo in public: And then after an exhortation by the *Senior*, are by him, thro' laying on of hands, added to the church and *confirmed*. The ſame method is uſed with thoſe who renounce the Papal ſuperſtitions, or who are turned from the ſervice of Satan to God; and that, if they deſire it, altho' they are not young; yea, though they are well ſtricken in years.

15. Once or twice in a month all the church receives the Lord's Supper, and the power of God being preſent amongſt them, a general confeſſion of ſins is made by one of the brethren in the name of all. Then a few ſolid queſtions are aſked; which when they have anſwered, the abſolution

lution or remiſſion of ſins is either pronounced to all in general, or confirmed to every particular perſon, by the laying on of hands. The Seniors firſt receive; then the reſt in order, without any regard had to worldly dignity, in this, any more than in any other of the ſolemn offices of religion. After receiving, all the men (and ſo the women) meet together, to renew their covenant with God, to ſeek his face, and to exhort one another to the patience of hope and the labour of love.

16. They have a peculiar eſteem for lots, and accordingly uſe them both in public and private, to decide points of importance, when the reaſons brought, on each ſide appear to be of equal weight. And they believe this to be then the only way of wholly ſetting aſide their own will, of acquitting themſelves of all blame, and clearly knowing what is the will of God.

17. At eight in the morning, and in the evening, they meet to pray and to praiſe God, and to read and hear the Holy Scriptures: The time they uſually ſpend in ſleep, is from eleven at night till four in the morning. So that allowing three hours in a day for taking the food both of their bodies and ſouls, there remains ſixteen for work. And this ſpace thoſe who are in health ſpend with all diligence and faithfulneſs.

18. Two men keep watch every night in the ſtreets, as do two women, in the women's apartment: They may pour out their ſouls for thoſe that

that ſleep; and by their hymns raiſe the hearts of any who are awake to God.

19. For the further ſtirring up of the gift which is in them, ſometimes they have public, and ſometimes private Love-feaſts: At which they take a moderate refreſhment, with gladneſs and ſingleneſs of heart, and the voice of praiſe and thankſgiving.

20. If any man amongſt them having been often admoniſhed, and long forborn, perſiſts in walking unworthy of his holy calling, he is no longer admitted to the Lord's Supper. If he ſtill continues in his fault, hating to be reformed, the laſt ſtep is, publicly, and often in the midſt of many prayers and tears, to caſt him out of their congregation. But great is their joy, if he then ſees the error of his ways, ſo that they may receive him amongſt them again.

21. Moſt of their brethren and ſiſters have, in ſome part of their life, experienced holy mourning and ſorrow of heart; and have afterwards been aſſured, that *there* was *no* more *condemnation for them, being paſſed from death unto life.* They are therefore far from fearing to die, or deſiring to live on earth; knowing that to them *to die is gain*, and being confident that they are the care of him, whoſe are the *iſſues of life and death.* Wherefore they depart as out of one chamber into another, and after the ſoul has left its habitation, the remains are depoſited in the earth, appointed for that

that purpoſe, and the ſurvivors are greatly comforted, and rejoice over them, with a *joy the world knoweth not of.*

It appears from hiſtory, that the Moravians ſuffered a moſt horrible perſecution in Moravia and Bohemia, about the year 1458: for the King having promiſed by his coronation oath, to extirpate the Heretics, was under a neceſſity to perſecute the United Brethren: Hence they were declared unworthy of the common rights of ſubjects, and in the depth of Winter, turned out of the cities and villages, with the forfeiture of all their effects. The ſick were caſt out in the open fields, where many periſhed with hunger and cold; and having been accuſed by the Romiſh prieſts, and ſome others, of being ſecret ſowers of ſedition, many were thrown into priſons, with a view of extorting from them by hunger, cold, racks, and other tortures, a confeſſion of having been guilty of ſeditious deſigns; but as they were innocent, nothing could be extorted from them that way. Hence numbers were inhumanly dragged at the tails of horſes, or carts, and quartered, or burnt alive. Many died in the priſons, and ſuch as ſurvived were, at laſt, when no crime could be proved againſt them, diſcharged in a moſt pitiful condition.

It alſo appears, that the various perſecutions that theſe people met with from time to time, was the cauſe of their emigrating from their own country,

country, and ſettling in different parts of the world.

Thus have I related the ſubſtance of their conſtitution as it ſtood in 1733; and whether they have added any thing to it, or diminiſhed any thing from it ſince that time, I have not learnt. I was once at their meeting in London, where they read the ſervice and made uſe of both vocal and inſtrumental muſic, but their prayers are different from thoſe of the church of England.

CHAP.

CHAP. LII.

An account of the METHODISTS.

METHODISM took its riſe in 1734; the Rev. George Whitfield, B. A. a Divine of the Church of England, who was born, 1714, and died 1770, and the Rev. John Weſley, M. A. a miniſter of the ſame church, who was born 1703, and died, 1791, are ſaid to be the founders of this inſtitution. But Mr. Whitefield's followers and Mr. Weſley's diſagree in ſentiment, in that the former believe that ſalvation is obtained by faith alone in Chriſt Jeſus, and that the love of God to his elect cannot be broken off; the latter believe that men are juſtified by works and grace, and that it is poſſible for them to go on in degrees of holineſs, till they arrive at laſt even to a ſtate of perfection in this life. Mr. Weſley's converts are ſo very numerous, that one of his preachers informed me there are about 70,000 in Great Britain, and Ireland; and, according to a publication which I have lately ſeen, there are upwards of 43,000 in America. Some of Mr. Whitefield's

field's followers are ſaid to be rigid obſervers of the 39 articles of the Church of England, whilſt others call themſelves Calviniſts.

The places appointed for aſſembling together are called Tabernacles by Mr. Whitefield's people, and preaching houſes by Mr. Weſley's adherents. Both ſometimes pray according to the forms in the Common Prayer book, and ſometimes extempore. They are very ſerious in their devotions, obſerve the Euchariſt, water baptiſm, and a love feaſt, the latter being only bread and water. When people enter into their church, they confeſs their ſins, tell what experiences they have had of the new birth, own a covenant, and receive a ticket, denoting that they belong to the Methodiſtical ſociety, and are entitled to all the privileges of the ſame. Theſe tickets are exchanged once in ſix months for new ones. But if any brother or ſiſter has walked diſorderly, they are excommunicated, by being debarred from the benefit of receiving a new ticket, unleſs repentance and reformation takes place.

Many of thoſe people within the circle of my acquaintance have pretended to very remarkable convictions and converſions; that their minds have been inſtantaneouſly illuminated by the rays of Divine grace; that they have thus been turned from darkneſs to light, and enabled to walk in newneſs of life; and ſome have pretended that they have ſeen viſions, &c. Theſe things have been imput-

ed to the powers of imagination only by ſome people, and others have imputed them to a ſupernatural power, but let them be as they may, I have ſeen a viſible change in ſome who have pretended they have been thus converted; as they have appeared to be more honeſt in their dealings and more exemplary in their lives and converſations than they were before.

Mr. Whitefield travelled through and preached in many parts of America; and Mr. Weſley, was about a year and nine months in Georgia and South Carolina: he alſo travelled and preached in Great Britain and Ireland, and has been ſeveral times in Holland and Germany. Mr. Whitefield was alſo a great traveller and preacher in England; and both of theſe Miniſters often preached in the fields, to ten, fifteen and ſometimes to twenty thouſand people.

It appears that theſe preachers have done much good, by uniting the people, and by promoting brotherly love, acts of kindneſs, charity and humanity amongſt mankind; for their followers are very kind to the poor, to ſtrangers, &c. as I have found by my own experience and obſervations.

Mr. Whitefield, died in New-England, in America, in the year 1770, and Mr. Weſley at London, March the 2d, 1791.

I ſhall conclude this chapter by adding the following, which I compoſed and publiſhed juſt after his death, viz.

An

AN ELEGY

On the Death of the late Reverend JOHN WESLEY, A. M.

GREAT *Weſley's* gone, he's landed on the ſhore,
Where grief and trouble ſhall afflict no more;
A pious life he liv'd upon the ſtage,
Until he was nigh eighty-eight of age.
In Lincolnſhire it truly has been found
This man was born, upon Great-Britain's ground.
When he was young, it often has been ſaid,
His father's houſe was all in aſhes laid:
The room in flames! behold, the child did wake,
Sprang to the window, which he up did take;
There, all alone, he loudly rais'd his cry
Unto ſome neighbours, that were drawing nigh
To him they ran, on hearing the loud call,
And took him out juſt as the houſe did fall:
Thus they the *lad* from *burning flames* did *pluck*,
And thank'd the *Lord* that they had ſuch good *luck*.
His mind on learning very much was bent,
Hence to a college he in time was ſent;
Studies profound the *pupil* follow'd till
He was a man of ſcientific ſkill.
As time roll'd on, with pleaſure and with eaſe,
He did receive the requiſite degrees;
After his learning he had thus obtain'd,
To preach the word, he truly was ordain'd:
From place to place, as godly teachers ſhou'd,
He often went, and daily did do good.

I underſtand that he, in former times,
Did croſs the ocean to the Weſtern climes:
He preached at Georgia, as ſome people ſay,
But left the place, and came again this way.
Has ſpent much time upon Old England's ground,
In writing books, and preaching all around.
Sometimes he landed on the Iriſh ſhore,
And many people preached the word before:
To Scotland too he frequently did go,
And twice to Holland, with his friends alſo;
A famous man he was to preach and pray,
When he was old, and in his younger day.
Both great and good, we truly may relate;
Exceeding uſeful both in church and ſtate;
Kind to the poor; he often gave relief
To men and women overwhelmed with grief;
Who taught the people always to ſuppreſs
Thoſe things, indeed, which lead to wickedneſs.
He loyal was, impreſs'd the bleſſed thing
Of fearing God, and honouring the King;
Exhorted men to let contention ceaſe,
To live in love, in harmony, and peace.
But he's been ſtruck a *fatal ſtroke* by *death*;
His body *fell*, and off did fly his *breath*.
The ſprightly *actions*, which he once poſſeſt,
Are wholly gone, and all is ſtill at *reſt*:
Can't ſee, nor hear, nor any way converſe,
Nor move one finger in the univerſe.
This is the *fate*, I plainly do relate,
Of ev'ry creature in this mortal *ſtate*!

The

The high, the low, the rich, the poor, the ſmall,
By the great *King* of *Terrors* down muſt fall.
Though ſome live long when they paſs through
this world,
Yet ſome by death ſoon from the ſtage are hurl'd:
The tender infants in their lovely bloom
Are often hurried to the ſilent tomb.
Adults grown up, nay, ſome of ev'ry age,
By cruel Death are taken from the ſtage.
When *Weſley* died, his ſpirit then did fly
To him that rais'd the arches of the ſky;
To realms above, where Saints and Angels ſing,
Loud Hallelujahs to their Heav'nly King.
Thus whilſt his body ſtays behind at reſt,
His pious ſoul with happineſs is bleſt.
O, happy ſtate, in which this man is caſt!
His pains are gone, and all his trouble's paſt!
Needs no phyſician to give him relief,
Is free from pain, from ſorrow, and from grief;
And from the rage of all the ſons of ſtrife,
And the vexations of a mortal life.
The ſland'ring tongue, and the backbiting knave
Can't hurt him now, he's in the ſilent grave:
Neither the thief that robs both night and day,
Nor any murd'rer who kills on the way;
By no means can the tyrant him oppreſs,
Nor wicked mortals lead him to diſtreſs.
When roaring winds bring up the thicken'd
cloud,
When the grum thunder rumbles out aloud,

When the earth quakes, when lofty mountains fall,
When cities ſink, and can't be found at all;
When inundations o'er the land ariſe;
When burning mountains burſt towards the ſkies:
When famine and the peſtilence doth rage;
When wicked nations in a war engage;
When blood and carnage greatly do expand,
When deſolation overſpreads the land;
And boiſt'rous tempeſts rage upon the ſea,
Great Weſley then from danger muſt be free:
Can't be afraid of being hurt or ſlain,
Like wretched mortals who alive remain.
Let not his *bearers* then at death repine;
Since it was made by God an *act divine*,
To raiſe the *Juſt*, the *Huſband*, *Child*, and *Wife*,
From ſcenes of trouble to a better *life*.

But let them all whilſt in the preſent ſtate,
His good *example* mind to *imitate*;
That when they *die*, like *him*, they may be *bleſt*
With *glory*, *honour*, *happineſs*, and *reſt*.

London, *March* 7, 1791.

CHAP.

CHAP. LIII.

An Account of the Swedenborghers, called the New Church.

THE Hon. Emanuel Swedenborg, ſon of Jaſper Swedborg, a Swediſh Biſhop, was born at Stockholm, in Upland, in Sweden, January 29, 1688, is ſaid to be the founder of this New Church. He was related to ſome illuſtrious families in that kingdom, and when young, made a great progreſs in the mathematics, natural hiſtory, phyſic, chymiſtry, anatomy, &c. which ſoon recommended him to the patronage of Charles XII. who made him Extraordinary Aſſeſſor to the Royal College of the Mines, which office he quitted, that he might apply himſelf to the new function to which he had been called: but he retained his ſalary, though he declined accepting a place of higher dignity in the State, leſt it ſhould be a ſnare to him.

He was ennobled by Queen Ulrica Eleonora, and named Swedenborg (his name before was

Swedborg) and took a ſeat with the Nobles of the Equeſtrian Order, in the triennial aſſemblies of the States, and was choſen a Fellow of the Royal Academy of Sciences at Stockholm.

He pretended that he belonged to a ſociety of angels, in which things ſpiritual and heavenly were the only ſubjects of diſcourſe and entertainment; that he converſed frequently with them, and the ſouls of thoſe who had departed this life, and that he had a call to teach the doctrines of the *New Church*. That in 1743, the Lord appeared to him perſonally, and opened in him a ſight of the ſpiritual world, and enabled him to converſe with ſpirits and angels.

He publiſhed a number of books in the Latin language, containing an account of the things he had ſeen, and thoſe revealed, concerning Heaven and Hell; the ſtate of men after death, the worſhip of God, the ſpiritual ſenſe of the Scriptures, and many other important truths, tending to ſalvation and true wiſdom.

After he had made eight voyages to England, he ſettled in the ſtudy of theology, was much eſteemed by the biſhops and nobles of his own country, and correſponded with many diſtinguiſhed characters in various parts of Europe; he died at the houſe where he reſided when in London, in Cold-bath-ſtreet, Cold-bath-Fields, March 29, 1772, aged 84 years. Some of his works have been tranſlated and printed in Engliſh.

The

The principles and doctrines of his followers, as communicated to me by a *Divine* of the Church of England, as are follow;

1. That there is a Divine Trinity in the perſon of Jeſus Chriſt, conſiſting of Father, Son, and Holy Ghoſt, juſt like the human trinity in every individual man, of ſoul, body, and operation; and that as the latter trinity conſtitutes one man, ſo the former trinity conſtitutes one Jehovah God, who is at once the Creator, Redeemer, and Regenerator.

2. That Jehovah God himſelf came down from Heaven, and aſſumed human nature for the purpoſe of removing Hell from man, of reſtoring the Heavens to order, and of preparing the way for a *New Church* upon earth; and that herein conſiſts the true nature of redemption, which was effected ſolely by the omnipotence of the Lord's divine humanity.

3. That the notion of obtaining pardon by a vicarious ſacrifice, or atonement, is a fundamental and fatal error. But that repentance is the foundation of the *Church* in man, and conſiſts in his abſtaining from all evils, becauſe they are ſins againſt God, &c. That it is productive of regeneration, which is not an inſtantaneous, but a gradual work, effected by the Lord alone, through charity and faith, during man's co-operation.

4. That

4. That man has free-will in ſpiritual things, whereby he may join himſelf by reciprocation with the Lord.

5. That the imputation of the merits and righteouſneſs of Chriſt is a thing as abſurd and impoſſible, as it would be to impute to any man the work of creation; for the merits and righteouſneſs of Chriſt conſiſt in redemption, which is as much the work of a Divine and Omnipotent Being as creation itſelf. That the imputation which really takes place, is an imputation of good and evil, and that this is according to a man's life.

6. That the doctrine of predeſtination and juſtification by faith alone, is a mere human invention, and not to be found in the word of God.

7. That the two Sacraments of Baptiſm and the Holy Supper are eſſential inſtitutions in the *New Church*, the genuine and rational uſes of which are now diſcovered, together with the ſpiritual ſenſe of the Holy Word.

8. That there is not a ſingle genuine truth remaining in the *Old Church* but what is falſified, and therefore the *Old* and the *New Church* cannot poſſibly be reconciled together.

9. That the Holy Word, or Sacred Scripture, contains a threefold ſenſe; namely, celeſtial, ſpiritual, and natural, which are united by correſpondencies; and that in each ſenſe it is Divine truth, accommodated reſpectively to the angels of the three Heavens, and alſo to men on earth.

10. That

10. That the books of the word (or Scriptures) are thoſe which have the internal ſenſe, and are the five books of Moſes, and thoſe of Joſhua, Judges, Samuel, Kings, the Pſalms, and all the Prophets; alſo, the four Evangeliſts, and the Revelation; and that the books of Ruth, Chronicles, Ezra, Nehemiah, Eſther, Job, Proverbs, Eccleſiaſtes, Song of Solomon, the Acts and Epiſtles of the Apoſtles, not having the internal ſenſe, are not the word, or Divine Revelation.

11. That in the ſpiritual world there is a Sun diſtinct from that of the natural world, the eſſence of which is the pure love of Jehovah God, who is in the midſt thereof; that the heat alſo proceeding from that of that Sun is in its eſſence love, and the light thence proceeding is in its eſſence wiſdom; and by the inſtrumentability of that Sun all things were created, and continue to ſubſiſt, both in the ſpiritual and in the natural world.

12. That there is not in the univerſal Heaven, a ſingle angel that was created ſo at firſt, nor a ſingle devil in the infernal regions, that ever was created an angel of light, and was afterwards caſt out of Heaven; but that all, both in Heaven and Hell, are of the human race; that thoſe in Heaven are ſuch as had lived in heavenly love and faith in this world; and thoſe in Hell are ſuch as had lived in helliſh love and faith on earth.

13. That

13. That the material body never riſes again; but that man, immediately on his departure from this life, riſes again, as to his ſpiritual and ſubſtantial body, (which was incloſed in his material body, and formed from his predominant love, whether it be good or evil) wherein he continues to live as a man, in a perfect human form, in all reſpects as before, ſave only the groſs material body, which he puts off by death, and which is of no further uſe.

14. That the ſtate and condition of man after death is according to his paſt life in this world; and that the predominant love which he takes with him into the ſpiritual world, continues with him for ever, and can never be changed to all eternity; and, conſequently, if it be good, he abides in Heaven to all eternity; but if evil, he abides in Hell to all eternity.

15. That true conjugal love, which can only ſubſiſt between one huſband and one wife, is a primary characteriſtic of the *New Church*, being grounded in the marriage of goodneſs and truth, and correſponding with the marriage of the Lord and his *Church*; and therefore it is more celeſtial, ſpiritual, holy, pure, and clean, than any other love in angels, or men.

16. That the ſcience of correſpondencies (which has been loſt for ſome thouſands of years, but is now revived in the theological works of the Hon. Emanuel Swedenborg) is the only key to the

the ſpiritual and internal ſenſe of the Holy Word, every page of which is written by correſpondencies, that is, by ſuch things, in the natural world, as correſpond unto, and ſignify things in the ſpiritual world.

17. That all thoſe paſſages in the Scripture, generally ſuppoſed to ſignify the deſtruction of the world by fire, &c. commonly called the laſt judgment, muſt be underſtood, according to the above ſcience, which teaches, that by the end of the world, or conſummation of the age, is not ſignified the deſtruction of the world, but the deſtruction or end of the preſent Chriſtian Church, both among Roman Catholics and Proteſtants of every deſcription; and that this laſt judgment actually took place in the ſpiritual world in the year 1757.

18. That the ſecond Advent of the Lord, which is a coming not in perſon, but in the ſpiritual or internal ſenſe of his Holy Word, has already commenced; that it is effected by means of his ſervant Emanuel Swedenborg, before whom he hath manifeſted himſelf in perſon, and whom he hath filled with his ſpirit, to teach the doctrines of the *New Church* by the word from him; and that this is what is meant in the Revelation by the New Heaven and the New Earth, and the New Jeruſalem thence deſcending.

Theſe people hold to the *Doctrine* or *Science* of *Correſpondencies*, which Mr. Swedenborg ſets forth

to

to be the moſt exalted of all ſciences, and as the fountain from whence the ancients derived all their underſtanding and wiſdom, being the only key whereby the Holy Scriptures can be properly underſtood.

This ſcience conſiſts in a correſpondence between the natural and ſpiritual world, and ſeems to include every thing that hath an exiſtence, becauſe this globe, with all its furniture, exiſts and ſubſiſts from the ſpiritual world, and both from the Almighty; and were the correſpondence to ceaſe, every thing in the natural world would periſh and be annihilated. For further information concerning this ſcience, I refer the Reader to Mr. Swedenborg's publications. A conſiderable number of people have embraced theſe principles in England; there is a ſociety in London, and one in Birmingham; and I underſtand that a Society has lately ſprung up in New-York, and another in Virginia, in America.

Such are the general outlines of the doctrines of the *New Church*, which I have taken ſome pains to collect from the beſt authority, and on the merits of which I ſhall leave to the judgment of my Readers to decide.

CHAP.

CHAP. LIV.

Of the MOSAIC, EVANGELIC, *and* CIVIL LAWS. *What Puniſhments have been ordered to be inflicted on Criminals.*

THE Moſaical laws are thoſe contained in the five books of Moſes, viz. Geneſis, Exodus, Leviticus, Numbers, and Deuteronomy; they were given by the Almighty to Moſes, and were by him communicated to the children of Iſrael.

Thoſe guilty of idolatry, blaſphemy, murder, adultery, ſodomy, beaſtiality, rape, man-ſtealing, houſe-breaking, curſing or ſmiting of parents, witchcraft, &c. were to ſuffer death. Thoſe who were guilty of fornication were to pay a fine; and thoſe who had ſtolen any thing were to reſtore four-fold. Thoſe who perjured themſelves were to be puniſhed with death, if the judges thought they deſerved it, but the puniſhment by ſcourging was not to exceed forty ſtripes.

The Evangelical laws are thoſe contained in the Goſpels of Matthew, Mark, Luke, and John; and alſo in the Writings and Epiſtles of the Apoſtles, who were ſent by Chriſt to preach the glad tidings of peace and ſalvation to the inhabitants of

of the world; and, in a word, these laws contain a complete system of the principles and doctrines of the Christian Religion.

No punishments are ordered to be inflicted under the Gospel dispensation, only an excommunication from the church. Hence it is said, if any man love not the Lord Jesus Christ, let him be *Anathema Maran-atha*. (Vid. 1 Cor. xvi. 22.) But the workers of iniquity who die in their sins, are to be punished in the world to come. Hence, indignation and wrath, tribulation and anguish, upon every soul of man that doth evil, &c. Vid. Rom. ii. 8, 9.

The civil laws are those composed out of the best of the Roman and Grecian laws. They were observed throughout the Roman dominions for more than twelve hundred years. They are also those laws which have been made by other legislators, for the government of empires, kingdoms, states, provinces, counties, and cities.

Different kinds of punishments have been ordered to be inflicted on criminals in different kingdoms and countries.

In Great Britain it is death, by the laws, to commit murder, highway robbery, theft, burglary, forgery, to coin money, become a traitor, commit a rape, sodomy, &c. Those found guilty of blasphemy are to have their tongues bored through with a hot iron, and various fines are imposed for offences less capital. Not more than forty

forty ſtripes can be put upon a criminal for one offence according to the Civil law.

The Martial laws are very ſevere, not leſs than a thouſand ſtripes may be inflicted on a criminal in an army at one time, if the officers ſee fit, as I have been informed; but only forty can be inflicted in a navy. It is death to deſert from an army, and I believe it is ſometimes to deſert from a fleet.

Various puniſhments have been inflicted among different nations, ſuch as fines, impriſonments, confiſcation of property, baniſhment, ſcourging, ſtanding in the pillory, cutting off of the ears, lying in the ſtocks, burning, hanging, drawing in quarters, racking on a wheel, cutting to pieces by inches, ſawing aſunder, drowning, the daſhing of criminals to atoms by throwing them down from high places upon rocks, ſtoning to death, &c. and many have loſt their lives by hunger, cold and nakedneſs, in dungeons, and priſons, and by being driven from their habitations into the open fields. Some have ſuppoſed that no puniſhments ought to be inflicted but ſuch as are mentioned in the law of Moſes.

I have often thought that children ought to be taught the laws of their country when they are young, as well as the Moſaical and Evangelical laws, for it might tend to deter them from committing crimes they may commit, if they are trained up in ignorance.

CHAP. LV.

Of the Laws of Nature, Motion, and Reſt. Attraction, Repulſion, and Compreſſion. The Velocity of the Rays of Light, and different Colours in the Univerſe. The Cauſe of Sound, and the Rapidity of its Motion.

THE laws of Nature are thoſe by which natural bodies are governed in all their actions upon one another.

Laws of motion are a continual and ſucceſſive mutation of place, or a moving from one place to another.

Laws of reſt are thoſe which cauſe bodies to remain in their different poſitions without motion.

Attraction is a drawing unto, or the tendency which bodies have towards one another.

Repulſion is a beating or driving back, and where attraction ends repulſion begins. But there are no bodies which repel only at certain diſtances. Hence a loadſtone will not repel a needle only at a certain diſtance.

Compreſſion is a ſqueezing or preſſing together, by the weight of the atmoſphere, or any other thing.

There

There are certain laws by which the motions of all natural bodies are conſtantly governed, and rules by which every thing relating to motion may be explained.

Sir Iſaac Newton deſcribed three kinds of the laws of Nature, viz.

1. That all bodies continue in their ſtate of reſt, or motion, uniformly in a right line, excepting they are obliged to change that ſtate by forces impreſſed.

Hence all bodies are incapable of moving themſelves, and, unleſs moved by ſome external or internal agent, muſt remain at reſt.

A rock will therefore lie ſtill, unleſs it is moved by an outward or an inward force. The former may be produced various ways, and the latter by an exploſion of gun-powder, after the powder has been put into its center, by means of a drill, &c. and other bodies may be moved in like manner, or from ſome other cauſe.

When a rock is put in motion, it will continue to move in a right-lined direction, until the reſiſtance of the air, the power of its own gravity, or ſome other external cauſe, turns it from that direction, diminiſhes its velocity, and brings it at laſt to a ſtate of reſt.

But the regions through which the planets and comets move make but a ſmall reſiſtance to their bodies, which are vaſtly large: hence their motions are continued the longer. If it was other-

wiſe, they would ſoon fall into the Sun, and be at reſt.

2. That all change of motion is proportional to the power of the generating force, and is always made according to a right line in which that force is impreſſed. Hence, if we ſtrike a muſket-ball in a horizontal direction, with hammer, or any other thing, it will fly off with a velocity in proportion to the violence of the blow, and in the ſame direction; hence alſo there can be no perpetual motion, becauſe all motion produced by any means is always in proportion to the generation force.

3. That repulſion, or re-action, is always equal, and in a contrary direction, to impulſe, or action, that is, the actions of two bodies upon each other, are always equal, and in contrary directions.

Hence if we preſs a ſtone with our fingers downward, the ſtone equally preſſes them again upwards. An anvil ſtrikes a hammer with the ſame force that the hammer ſtrikes the anvil. If a mill-ſtone ſhould be caſt from the top of a ſteeple to the ground, the ground would ſtrike the ſtone with the ſame velocity that the ſtone would ſtrike the earth. If a horſe draws a cart, the cart draws the horſe with the ſame force, for the harneſs is equally diſtended both ways. When a boat is pulled to the ſhore by a rope, the ſhore pulls the boat as much as the boatſman pulls the ſhore, &c. &c.

Of

Of the Effects of Non-elaſtic Bodies ſtriking each other.

1. If one body ſtrikes againſt another at reſt, they will both move in the ſame direction of the firſt motion, providing the latter was moveable.

2. If one body ſtrikes another moving the ſame way, but ſlower, they will both continue their motion in the ſame direction as before; and the quantity of motion in both will ſtill be the ſame.

3. When two bodies with equal quantities of motion tend both directly towards, and ſtrike each other, the whole motion will be deſtroyed by their meeting, and both will fall to the ground, and be at reſt.

4. Two bodies moving directly towards each other with different velocities, will, after the ſtroke, both continue their motion in the direction of that motion which had the greateſt velocity; and the quantity of motion after the ſtroke will be equal to the difference of their motions before it.

Of the Striking of Bodies which are Elaſtic.

Suppoſe two ſuch bodies as A and B; A has three parts of matter and eight degrees of velocity, and B has nine parts of matter and two degrees of velocity; then the quantity of motion in A will be 24, and that of B 18. Now, ſuppoſing theſe bodies to impinge on each other, the velo-

city of each after impact, and the direction of their motions may be known as follows:

1. Let the body of A impinge on B at reſt; then from A take B, and multiply the remainder by the velocity of A; divide this product by the ſum of the bodies A and B, the quotient will expreſs the velocity of A after the ſtroke. As the body A is leſs, equal to, or greater than B, ſo it will be retrogade, or direct in motion after impact. Thus in the preſent caſe the difference of A and B is 6, which multiply by A's velocity 8, the product is 48; this divided by the ſum of the bodies 12, quotes 4, the degrees of velocity with which A will return back after impact.

2. Again, divide twice A's motion by the ſum of the bodies, the quotient will be the velocity of B after impact; thus 48 divided by 12, quotes 4, the velocity of B after the ſtroke; ſo that though the velocity be the ſame, the motion in both bodies is double to what it was at firſt in A.

3. Let the bodies both tend one way, and A follow B; then to the motion of A add twice the motion of B; from that ſum ſubtract the product of A's velocity multiplied into the matter in B; divide the remainder by the ſum of the bodies, the quotient will be the velocity of A after the impact. As the product is leſſer, equal to, or greater than the ſum above-mentioned, ſo the motion of A will be direct, none at all, or backward, after the ſtroke.

4. Again,

4. Again, to twice the motion of A add the motion of B, from that ſum ſubtract the product of B's velocity into A; divide the remainder by the ſum of the bodies, the quotient will be the volicity of B after the impact.

5. An example of each, in our preſent caſe, is as follows: To 24 add 36, the ſum is 60, which I take from 72, (as being the greateſt) the remainder is 12, which divided by 12, the quotient is 1; ſo that A returns back with one degree of velocity, having loſt *ſeven*.

6. Again, to 48 add 18, the ſum is 66, from which I take 6, and the remainder 60 I divide by 12; the quotient is 5 for the velocity of B's motion.

7. If the bodies tend the contrary way, or meet, then from the ſum of twice B's motion, and the product of A's velocity into B, take the motion of A, and divide the remainder by the ſum of the bodies, the quotient is A's velocity after meeting; and as the ſum is greater, equal to, or leſs than the ſaid motion of A, the motion of A will be backward, none at all, or forward.

8. Again, to the difference of B's motion and twice A's add the product of B's velocity into A, divide the ſum by the ſum of the bodies, the quotient will be the velocity of B after reflection.

9. To illuſtrate both of theſe caſes by our preſent example. The ſum 72 and 36 is 108, from which I take 24, the remainder 84 I divide by

12, which quotes 7 for A's velocity backward. Again, to the difference of 48 and 18, which is 30, add 6, and divide the ſum 36 by 12, the quotient is 3 for B's velocity the contrary way.

Theſe rules are applicable to all bodies and celerities, as may be eaſily demonſtrated by a great variety of examples.

Thus much for the laws of nature, motion, and reſt. It may be proper, however, to add, that reſt is produced either by the weight of bodies and the attraction of the earth beneath, or by their weight and the preſſure of the atmoſphere above.

All bodies thrown into the air deſcend in right lines towards the earth's center, unleſs they are turned out of that courſe by the force of ſome agent; but whether they deſcend in a right, or an oblique courſe, they draw towards the center, when they come to reſt. But the queſtion is, what makes them draw towards the center, is it attraction, or compreſſion?

Many of the philoſophers have imputed it to the former, and they have ſuppoſed that the earth has ſuch an attraction, that ſhe ſometimes draws the moon towards her center, as well as other bodies; that each globe attracts in proportion to its magnitude; hence the moon attracts the earth, but with a leſs power, then the earth attracts the moon, and that this is the caſe with all other primary and ſecondary planets.

This

This attracting power is called attraction by philoſophers; and the motion of bodies towards the earth's center, &c. is called gravitation. By this power the earth is formed into a denſe ball, and things animate and inanimate are confined to its ſurface. A body left to the power of this agent falls about a rood in the firſt ſecond of time, three roods in the ſecond ſecond, five in the third, ſeven in the fourth, &c. agreeable to the following odd numbers, 1, 3, 5, 7, 9, 11, 13, &c. for the *vis inertiæ* of the falling body, added to the power of gravity, accelerates its motion, and the nearer it approaches to the earth, the ſwifter will its motion be till it comes to reſt.

Hence we may conclude, that if it is the power of the attraction of the earth that draws this body to it, the attraction is greater near the earth's ſurface, than it is at a diſtance, becauſe the rapidity of the motion of the falling body increaſes as it draws nearer and nearer to the earth; but if it is the compreſſion of the atmoſphere on the body that drives it towards the earth's center, may we not conclude, that the air is heavier at, and near the circumference of the globe than it is in the upper regions, and that from hence the weight becomes greater and greater as the body ſubſides which accelerates its motion. But perhaps attraction and compreſſion may both operate together.

A Mr. Pope, whom I mentioned page 45, has imputed the cauſe of gravity, to the preſſure of the

the atmoſphere above, and not to the attraction of the earth beneath; and whether he is right or wrong, I will not undertake to determine at preſent, but it ſeems as probable to me that it is from compreſſion, as attraction, for we are told by philoſophers, that the air which encompaſſes the globe hath weight or gravity. That the atmoſphere compreſſeth the earth, with a force nearly equal to that of five thouſand millions of tuns. That this preſſure on every ſuperficial ſquare foot, is more than 2000 pound weight, that the air is heavier on the ſurface of the globe than it is at a diſtance. Now if the earth and waters are compreſſed with ſuch an amazing weight, will it not tend to drive things towards the center of the globe? Vid. page 283.

Of the Velocity of the Rays of Light.

Light is ſuppoſed to ariſe from a very fine ætherial matter, that is vaſtly finer than the air, which is the medium by which the rays of thoſe luminous particles are tranſmitted to our eyes from the ſun, moon, ſtars, and other refulgent bodies.

The rays of light are ſaid to fly 180,000 miles in a ſecond of time; which is one million five hundred and thirty thouſand times faſter than the motion of a cannon ball, which flies a mile in about eight ſeconds and a half, hence ſuch a ball would

would be about 32½ years, in flying to the ſun. But rays of light are ſuppoſed to be 7½ minutes in deſcending from the ſun to this globe.

Of the different Colours in the Univerſe.

The colours are ſeven in number, viz. 1. Red, 2. Orange, 3. Yellow, 4. Green. 5. Blue. 6. Indigo. 7. Violet. (vid. page 166.) But black and white are not reckoned among the primary colours of light, for white is only a mixture of the ſeven original colours, and black only a hue of thoſe bodies which abſorb all the rays of light; and therefore as it abſorbeth all the rays, and reflects none back it is properly no colour at all. Hence black clothes attract more heat than thoſe which are white, becauſe they abſorb it; but the white reflects it back. Hence alſo if we put a white glove on one hand, and a black one on the other, and hold them at an equal diſtance from the fire, the black glove will abſorb the heat, and the white will reflect it back, and the difference of the degrees of heat, will be ſenſibly felt.

Of the Cauſe of Sound, and the Rapidity of its Motion.

Sound is produced by a ſtroke, exploſion, and ſome other cauſes which puts the air in motion like the waves of the ſea; which pulſations, ſtriking on the *tympanum*, or drum of our ears,

ears, convey by the nerves the ſenſation of hearing to our minds.

Some ſounds have been heard to a great diſtance. It has been ſaid, that the exploſions of great guns, have been heard 200 miles, but ſome can hear, as well as ſee, much further than others.

As to the rapidity of the motion of ſound, it depends very much upon the denſity of the air, or the rarifaction of the ſame, for the latter weakens, but the former operates *vice verſa*. The velocity of ſound at a medium, is about 1142 feet in a ſecond of time. Hence by this rule we may tell nearly, how far an enemy is from us, ſuppoſing it is 10 ſeconds after we ſee the flaſh of a cannon, before we hear the report, we may conclude that it is ten times 1142 feet from us, which is equal to 11420 feet; hence alſo by the ſame rule we may know the diſtance of thunder and lightning.

CHAP.

CHAP. LVI.

How to raiſe Grapes, Silk, Hemp, and Flax.

IT is ſaid that the art of making wine was diſcovered by Noah; that it was brought into India by Bacchus, and that none was produced in France in the time of the Romans. It was ſold by the apothecaries as a cordial in England, in 1300; and licences were eſtabliſhed for vending of it in 1661. But grapes were introduced in England in 1550, and cherries and pears the ſame year.

I have drank very good wine made of grapes that were raiſed on Long-Iſland, in the State of New-York, in America, and have alſo ſeen a ſilk gown that was raiſed and manufactured in the ſame Government. As to hemp and flax, a plenty of both is raiſed in many places on the American continent.

Many excellent wines are produced in France, as the Champagne, Burgundy, Bourdeaux, Gaſcony, Hermitage, Frontiniac, and Pontacke; and I have often thought that America may produce as good wine, if vines were properly cultivated.

vated. Such a cultivation, as well as that of raiſing ſilk, would be a great ſaving to the community.

We do not want either for heat or cold in America, for both are very extreme in ſome parts at particular ſeaſons. Hence if cold climates were the moſt agreeable for the raiſing of grapes and ſilk, Canada, Nova-Scotia, and New-England, would be ſuitable; or if hot climates are the beſt, then the Carolinas and Georgia may be moſt convenient. I underſtand that grapes have thrived very well in South-Carolina, where attempts have been made to cultivate them; and although Paris, the capital of France, is ſituated in the latitude of 48 degrees and 50 minutes north, which is more than eight degrees further to the northward than Philadelphia; yet they raiſe a plenty of grapes. It is true, indeed, that the cold is not ſo extreme there, as it is in the ſame parallel of latitude in America; but it is much colder in Winter at Paris than it is in England, becauſe it is ſituated on a continent.

I had the pleaſure of viewing the vineyards in France when I was there in 1790. The vines were planted near two feet apart, and were hoed much like the Indian corn in America; they ran upon poles that were about four or five feet high; the grapes hung in cluſters almoſt from the tops to the bottoms of the vines. The time for gathering and making wine is in the Fall. Towards Winter the vines are cut down cloſe to

the ground, and from their roots another ſet ariſe, which bear grapes the next year.

If the tree or vine is wounded in the Spring, it yields a clear, limpid, watery juice, which has been eſteemed good for ſore eyes, malignant fevers, and a ſuppreſſion of urine. The flowers have a pleaſant ſmell, and, being diſtilled in water, yield an eſſential oil, poſſeſſing the fragrance of the flowers. The unripe fruit is very harſh, rough, and ſour. The expreſſed juice, called verjuice, is ſaid to be cooling and aſtringent; the ripe fruit dried are the raiſins and currants of the ſhops. The juice affords, by fermentation, wine, vinegar, and tartar.

There are about twenty ſpecies of vines, accroding to accounts given by botanical writers; and as to wines, there are a great variety; but thoſe uſed in the ſhops of London for medical purpoſes are the following, viz.

1. *Vinum album Hiſpanicum*—Spaniſh white wine, or mountain.
2. *Vinum album Gallicum*—French white wine.
3. *Vinum Canarium*—Canary, or ſack.
4. *Vinum Rhenanum*—Rheniſh.
5. *Vinum rubrum*—Red Port.

Good wine, drank with moderation, cheers the ſpirits, warms the habits, promotes perſpiration, renders the veſſels full and turgid, raiſes the pulſe, and quickens the circulation; it helps digeſtion, and ſtrengthens the ſolids. But if it is drank

drank to excefs it hardens the fibres, affects the nerves, diminifhes the fecretions, deftroys the appetite, and generates chronic diftempers.

Many of the wines, as well as other liquors, are adulterated, which makes them very prejudicial to health.

Sweet wines abound with a glutinous nutritious fubftance; they heat the conftitution more, and are not fo diuretic as other wines. Red wines have an aftringent quality; hence they ftrengthen the tone of the ftomach and inteftines, and reftrain immoderate fecretions. Thofe that are acid are faid to loofen the belly and promote urine; but they occafion gouty and calculous complaints, which is the effect of all new wines.

Of the Raifing of Silk.

According to chronology, raw filk was made in China 150 years before Chrift, and was firft brought from India, A. D. 274; filk worms eggs brought into Europe 527; the manufactory of it was introduced in Europe 551, firft worn in drefs 1455; firft manufactured in France 1521, firft worn by the Clergy in England 1534, broad filk manufactured from raw filk in England 1620, brought to perfection by the French refugees in London 1687, a filk throwing mill invented at Derby 1719. Vid. p. 11.

Silk

Silk is produced by a curious inſect, called a ſilk-worm, which multiply very faſt, as a female will ſometimes lay 500 eggs. When a worm is firſt hatched, it is about the bigneſs of the head of a common pin. It feeds upon mulberry leaves, and grows to the ſize of a caterpillar; after which it no longer eats, but prepares for its diſſolution. It wraps itſelf in a kind of ſilken ball, ſpun from its own bowels, its head ſeparates from its body, and in every reſpect changes from its original form, and appears to be deſtitute of life and motion. However, after it has remained in this condition ſome time, it awakes, and becomes another kind of inſect, reſembling a large moth or butterfly. In this laſt ſtage the female lays a prodigious number of eggs, after which ſhe dies.

Theſe inſects are at firſt black, then of an aſh grey, afterwards they ſhed their coats, and grow whitiſh, or rather of a bluiſh caſt; they again ſhed their ſkins, and in a few days become yellow, feed a little longer, and wrap themſelves in their ſilken balls, and go through the changes already mentioned.

On the day they begin their balls, they make a kind of flue or down; the next day they begin to form the out-ſides in the midſt of the looſe ſilk made the day before; on the third day it is entirely obſcured, and in a week the buildings are compleated. They are of a conic figure, like the eggs of pigeons.

The Chineſe have two methods of bringing up their ſilk-works; they either let them range on the mulberry-trees, or keep them in rooms; the latter produce the fineſt ſilk; but if they are not ſuffered to go abroad, they muſt be fed with mulberry leaves.

As to the manufacturing of ſilk, I am not acquainted with the different modes. There are nankins, damaſks, ſattins, taffeties, brocades, gauzes, &c. which I believe are manufactured different ways. What I have attempted to exhibit is how it may be raiſed.

Of the Raiſing of Hemp.

The ground ought to be well manured, and ploughed and harrowed ſeveral times. Moiſt land is eſteemed the beſt, and aſhes are the beſt manure; the ſeed ſhould be ſown early in the Spring, and harrowed in. When the hemp is ripe, it muſt be pulled; and when dry, the ſeed may be threſhed out. Afterwards the ſtalk may be rotted in the water, or by being ſpread on the ground. When it is rotten enough, let it be dried, and put into a barn. In Winter let it be braked and ſwingled. Hemp is of great utility in the rigging of veſſels, and in many other branches of buſineſs.

Of

Of the Raiſing of Flax.

The ground may be cultivated and manured in the ſame manner as that for hemp, only ſome have ſuppoſed that it is beſt to draw a heavy roller over it, to beat it down, after the ſeed is ſown; it may perhaps kill the inſects; in other reſpects it may be managed like hemp.

Linen was firſt made in England in 1253, by Flemiſh weavers; till then woollen ſhirts were worn. The linen trade began in Ireland in 1634; and fine linen was made in that kingdom from nettles, in 1755.

CHAP. LVII.

Of Green, Bohea, Congo, Souchong, Singlo, Bloom, Imperial, Hyſon, and Gunpowder Teas; and alſo the Rad. Ginſeng.

TEA was firſt brought into Europe by the Dutch Eaſt-India Company in the beginning of the ſeventeenth century. In 1666 a quantity of it was brought from Holland to England, and ſince that time the uſe of it has become univerſal.

It grows on a *ſhrub* in China and Japan, called the *Tea Plant*. It principally grows between the latitudes of 24 and 28. The beſt teas are to be had at Nankin, in China.

There are ſeveral kinds of teas; ſome finer, ſmoother, and more fragrant than others, according to the ſoil they grow in; that called ſinglo is eſteemed the moſt elegant, and uſed by the more opulent.

Some teas are denominated for their particular colours and qualities. The bohea is much eſteemed in China, on account of its flavour and medical qualities. It is from the ſame plant with the green,

green, and only differs from it by being gathered ſix or ſeven weeks ſooner, that is in March, when in its full bloom, and the leaves are full of juice; whereas the other, by being left ſo much longer on the tree, loſes a part of its juice, and contracts a different colour, taſte, and virtue, being more rough to the palate and racking to the ſtomach. The bohea is gathered in March, the imperial in April, and the ſinglo in May or June; ſo that the general diviſion of teas is into two ſorts, viz. the green and bohea, which both proceed from the ſame kind of plant, as already obſerved; and as to the appellations given to the other teas, they ariſe from the time of gathering, the province where produced, or the method of curing.

The method of curing is to infuſe the leaves in water for a certain time, by which the reſinous particles are diſſipated, and rendered palateable; for without this operation they would be ſo bitter, that ſcarce any quantity of ſugar would be ſufficient to correct the taſte. After this infuſion, the bohea is expoſed to the heat of the ſun, or dried by the fire, till it is criſped, or contracted into the ſmall compaſs in which we ſee it.

But the green having been aſſiduouſly turned and ſtirred about the whole time, is ſtrewed upon ſheets of copper, (which are gently warmed by embers beneath them) and rolled up and down by perſons, whoſe hands are defended by thick leather gloves from the effluvia, which, without ſuch

precaution, would prove of the moſt pernicious conſequence.

Though the green tea confeſſedly derives the principal part of its tincture and flavour from the baneful vapours that exhale from the heated copper, theſe very circumſtances, inſtead of rendering it obnoxious, are the principal recommendations of it, not only to the Europeans and Americans, but to the Aſiatics; for ſuch is the infatuation of mankind, that they would rather pleaſe the eye and gratify the taſte, than attend to the conſtitution of their bodies, though eſſential to the preſervation of life.

The Chineſe make uſe of a weak infuſion of bohea as their common drink: they do not drink it ſtrong, nor uſe it in the manner we do. It corrects the unwholeſome brackiſhneſs of their waters, which in ſome places would breed diſtempers.

It is deemed by them a great diluter; they drink great quantities of it in fevers, colics, and other acute diſeaſes, and in chronic complaints. They call it a cephalic and diuretic, and good for the head-ache, and to promote urine, digeſtion, perſpiration, and other ſecretions, and alſo as a great ſtrengthener of the brain and ſtomach.

Various opinions have ariſen amongſt gentlemen of the *faculty* concerning the virtues of tea, both in Europe and America; but ſome of the moſt celebrated phyſicians of the preſent age eſteem

eſteem it as a diluter, agreeable to the palate and ſtomach. It operates as a cephalic, for it eaſes pains in the head, and prevents ſtupidity, or ſleepineſs. It ought not to be drank too hot nor too ſtrong. A ſtrong decoction of green tea will excite vomiting, owing, it is ſaid, to its aſtringency; but, perhaps, it is from the pernicious qualities imbibed from the copper-plates. It is high time that ſuch an unjuſtifiable practice was ſuppreſſed.

The bohea tea, if not adulterated, is the moſt wholeſome, in my opinion, both for food and medical uſes, and may be drank freely, without injuring a perſon, both in ſickneſs and health. Milk and ſugar make tea very palateable.

Perhaps tea may be cultivated in America at ſome future time.

The *Radix Ginſeng* was formerly imported from China, and ſold at Boſton, in New-England, for a guinea an ounce; but of late great quantities of it have been found in Canada, Vermont, and Pennſylvania, and vaſt quantities have been exported to the Eaſt-Indies. This root ought to be cultivated in thoſe countries, and enough exported to balance the teas imported from the Eaſt-Indies.

The Chineſe eſteem this root as a general reſtorative and corroborant, and excellent in all decays of age, intemperance, or diſeaſe. It is a mucilage, ſweet to the taſte, with a ſlight degree of bitterneſs, and an aromatic warmth. I have

frequently uſed it for coughs and other diſorders of the lungs with ſucceſs. A drachm, in ſlices or powder, may be boiled in a gill of water, and the decoction ſweetened with ſugar, and drank as ſoon as it is cool enough. This is for one doſe; it ſhould be repeated night and morning.

CHAP.

CHAP. LVIII.

How to manage Bees.

OF bees there are two kinds, the male and female. The former are called drones, the latter, honey, or working bees. The drones are about half as big again as the females. The voice of the drone is much louder and more dreadful than that of the honey bee, and they often excite a cauſeleſs fear, for they have no ſtings, and can hurt no creature, being under the dominion of the females. The bees have alſo a leader, called the Queen Bee; her body is much bigger and larger than that of a honey bee; her hinder parts are black, and ſhe preſides over the reſt.

The honey bees have ſtings in their tails, and when they ſting one another, it generally proves mortal both to thoſe who ſting and to thoſe that are wounded.

They ſuck their honey from flowers. It enters into a bottle, or bag, ſituated in their hinder parts; when it is full, they return home, and empty it into the honey-comb; they alſo bring home water in the ſame manner, to mix the bee-bread with, for feeding their young.

Bees

Bees proceed from ſmall white eggs; they are maggots when they are firſt hatched.

The tongues of the drones are ſo much ſhorter than thoſe of the females, that they cannot reach the honey in the ſocketed flowers. Hence they cannot work if they would; their buſineſs is to ſtay at home, and ſit upon the eggs, which are hatched by their warmth, whilſt the female follows the delightful vocation of gathering and bringing home the honey and water.

At about one or two o'clock the work of the day is chiefly over with the females; and on their return home to take care of their young, the drones are ſuffered to go abroad, to recreate and empty themſelves; afterwards they return again to their beloved honey, and are kindly received by their imperious dames.

The females are very careful to work in warm weather, and lay up a ſtock of honey to prevent their dying in the Winter. In wet Summers and bad weather, they are ſometimes hindered from laying up a ſufficient ſtore, hence they die, unleſs they are fed. Some feed them with molaſſes and gingerbread.

Bees commonly ſwarm in May and June in America, and have often two or three broods in a ſeaſon; and if a hive is not prepared for their reception, they are led off by the Queen Bee to a hollow tree, where they enter into a new habitation. Trees have been felled that have had more

than a barrel of honey in them. But there would be no need of their ſwarming at all, were their hives large enough to hold the new generation.

The bees often rob each other of their honey. Hence great battles enſue. But if the plundered party have loſt their Queen, they will join with the robbers, and ſuffer all the honey to be carried out of the hive, and when they ſeek new quarters amongſt other bees, deſperate wars commence.

Mice, moths, ear-wigs, hornets, waſps, ſwallows, and ſparrows, are enemies to bees. The mice will ſometimes make the bees wholly leave their hive.

When the bees bury their dead, they fly off with them, and drop their bodies at ſome diſtance from the hive. They do not live much more than a year, as ſome ſay.

When people take up their bees, they dig a hole in the ground, and at evening put a lighted match of brimſtone into it, and place the hive thereon, which is immediately ſurrounded with earth, to keep in the fumigation, and prevent the bees from making their eſcape. They fall to the ground, and die in a few minutes, for the want of air. Afterwards the honey is taken for uſe. Sometimes 120 pound has been taken out of a hive, which has commonly been ſold for ſixpence ſterling per pound, and the wax for a ſhilling. Hence the keeping of bees muſt be very profitable.

Honey,

Honey, as a medicine, is aperient and detergent; it powerfully diſſolves viſcid juices, promotes the expectoration of tough phlegm, helps a ſore throat, coughs, aſthmas, and other diſorders of the lungs, heals and cleanſes the kidnies and urinary paſſages, and is good for wounds and ulcers; but it is hurtful to bilious, hypochondriac, hyſteric, and melancholic habits; for it generates bile, and ſometimes pain, if eaten when new; this may, however, be prevented by the boiling of it before it is eaten. The doſe alone is from one ounce to two.

CHAP.

CHAP. LIX.

Of the Raiſing of Horſes, Cattle, Sheep, and Swine. Obſervations on the Eating of Swine's Fleſh.

THE barns in America ought to be built of brick or ſtone, that the horſes, cattle, and ſheep, may be kept warm; for they will eat leſs, and thrive better, if they are kept ſo, than when they are pinched with the cold. But ſheep ought not to be kept too warm, for it will cauſe a relaxation of their cutaneous pores, and make them loſe their wool.

All theſe animals ought to be fed often, kept clean, and to have water in ſeaſon; and if they are remote from the ſea, or live on freſh graſs, or hay, they ſhould have ſalt three or four times in a week, if not oftener, for it will make them eat, drink, and thrive much better than they will if they live without. Some ſprinkle a weak brine on their hay, which will make them eat it, if it is not good.

Horſes and cattle ſhould be curried with a curry comb twice or thrice a day, for it promotes the circulation of the fluids, and makes them thrive.

All

All theſe animals are very profitable when they do well, and thoſe that raiſe them commonly grow rich, if they are prudent, and have good farms. We have had ſome cows in America, that have given about 20 quarts of milk in a day. But all theſe kinds of cattle are not very large in Canada, by reaſon of the extremity of the Winters; however, the horſes, cattle, and ſheep, are very good in New-England, New-York, &c. Sheep produce both meat and clothing. Great care ought to be taken of the lambs when they are young, to prevent their being devoured by wild beaſts, dogs, and ſwine. About half a pint of Indian corn given to a ſheep every day is ſaid to be very good juſt before and after ſhe has brought a lamb.

Swine ought to be kept warm and clean, and to be fed often; but they are very unruly, and eſpecially if they are ſuffered to run at large, for they will be rooting up the ground and getting into miſchief, if they are not yoked and ringed. They are an unprofitable animal, for, like the *miſer*, they do no good until they are dead.

Some people have ſuppoſed that their fleſh is not fit to be eaten; I ſhall therefore adduce ſome reaſons on their ſide of the queſtion.

We find that nothing is more ſtrictly forbidden in the *Law* of *Moſes*. For the commandment of the Almighty runs thus:

"Of their fleſh ye ſhall not eat, and their carcaſe

" ſhall

"ſhall ye not touch: they are unclean to you." Vid. Levit. xi. 8. And it ſeems that Chriſt himſelf was no great friend to the ſwine, otherwiſe he would not have ſuffered the devils to have entered into them, nor have ſuffered their owners to be deprived of their property, by letting their ſwine run violently down a ſteep place into the ſea, and periſh in the water. Vid. Matt. viii. 31, 32.

Now, if the ſwine were unclean to the Jews, how comes it to paſs that they are not ſo to other nations?—In the London Practice of Phyſic, page 5 of the introduction, we are told, "that "pork fed in London is far from being whole-"ſome diet." If that is true, then ſurely it ought not to be eaten. I never eat much pork myſelf; but ſometimes when I have been upon a journey, or have fell into company, I have eat ſome of it, and if it was freſh, it has produced a nauſea, griping pains, and a diarrhœa, both in Great-Britain and America, but it does not have ſuch an effect upon every conſtitution.

According to the accounts mentioned by ſome phyſical authors, ſwine's fleſh generates the leproſy, and other cutaneous eruptions, in divers countries, and eſpecially in hot climates.

The Jews obey the commandment of the Lord to this day; for they abſtain from the eating of ſwine's fleſh, and other unclean things forbidden in the Moſaical law. I once aſked a Jew, why he did not eat ſwine's fleſh, and he ſaid, it was becauſe it

it is unwholeſome. I was afterwards credibly informed, that ſeveral of his young children went to a neighbour's houſe, where they eat ſome pork, but ſoon returned home, and told what they had been eating; the father gave them an *emetic*, which ſoon made their ſtomachs diſcharge their contents.

According to the Law of Moſes, all kinds of beaſts are unclean but thoſe that divide the hoof and chew the cud; and all kinds of fiſhes, excepting thoſe that have fins and ſcales. There are alſo clean and unclean fowls.

Many beſides the Jews adhere to the Moſaical law, in regard to animal food.

The inhabitants of Abyſſinia abſtain from blood, things ſtrangled, and thoſe unclean birds, beaſts, and fiſhes, mentioned by Moſes. This is a great country, for it is about 1300 miles long, and 1100 broad.

The Perſians eat no pork, nor any thing forbidden in the Moſaical Law; their country is alſo large, being about 1200 miles ſquare.

The Empire of the Great Mogul is about 1700 miles in length and 1300 in breadth. The inhabitants do not eat ſwine's fleſh.

Theſe things being premiſed, I ſhall proceed to make ſome philoſophical obſervations.

The fleſh of all animals is impregnated by the nouriſhment they ſubſiſt upon. Hence thoſe birds, beaſts, and fiſhes, that feed upon poiſonous and filthy

filthy things, muſt be unclean, and of courſe unwholeſome to the human race.

Fiſh that live upon beds of copper mines are poiſon, becauſe their bodies are impregnated with the qualities of that mineral.

That the ſwine will feed upon the worſt of carrion, and other filthy things, is evident to every one that is acquainted with thoſe animals. And if their fleſh is unclean to the Jews, and to the inhabitants of thoſe great countries which I have mentioned, how comes it to paſs that it is not ſo to other nations? If the learned and ingenious phyſicians have diſcovered, that pork fed in London is far from being a wholeſome diet, ſhould not the raiſing of it be ſuppreſſed? Why ſhould the people be ſuffered to raiſe and eat things prejudicial to their health?

But if any ſhould object, and ſay, that the ſwine may be ſhut up, and kept from eating unclean things, and that their fleſh may thereby be made wholeſome, I anſwer, that although that may tend to make their fleſh more wholeſome than it might be if they fed altogether upon poiſonous things, yet ſome animals aré unclean and unwholeſome in themſelves by Nature.

Surely the Great Governor of the Univerſe knew what was ſo and what was not. The commandment I have mentioned came from him, for the chapter (viz. Levit. xi.) begins thus—"And "the Lord ſpake unto Moſes, and to Aaron,

"saying unto them, Speak unto the children of "Iſrael, &c." and nothing is more ſtrictly forbidden, not even murder and theft, than the touching and eating of *ſwine's fleſh*.

But, perhaps, ſome may ſay, that this command was ceremonial, and is aboliſhed.

I anſwer, that we have no account of its being aboliſhed, neither in the Old nor in the New Teſtament; and that by the ſame rule they may ſay, that the command againſt murder is alſo aboliſhed.

But ſome have pretended, that all thoſe unclean animals were changed, or made clean, at the time that Peter went into a trance, and ſaw Heaven opened, and a certain veſſel deſcending unto him, which contained all manner of four-footed beaſts of the earth, and wild beaſts, and creeping things, and fowls of the air, when a voice ſaid, "Riſe, Peter, kill, and eat. But he ſaid, Not ſo, "Lord; for I have never eaten any thing that is "common or unclean. And the voice ſpake unto "him again, ſaying the ſecond time, What God "hath cleanſed, that call not thou common." This was done *thrice*, and the veſſel was received up again into Heaven.

By this text it appears, 1. That Peter, who had been one of Chriſt's diſciples, and was inſtructed by him in the principles and doctrines of the Chriſtian religion, had always adhered to the law of Moſes, by abſtaining from the eating of ſwine's fleſh, and other unclean animals.

2. That although all kinds of beaſts, creeping things, and fowls, were preſented before him, he was not commanded to kill, or eat, thoſe that were unclean.

3. That we have no account of any fiſhes being in the veſſel. Hence if the birds and beaſts were all made clean, it ſeems that nothing was done for the fiſhes, and that thoſe that have not fins or ſcales ſtill continue to be unclean.

4. That this viſion had no reference to the changing and purifying of the natures of the ſwine and other unclean animals, but to the cleanſing of the nations; for after Peter had doubted for ſome time concerning the meaning of the viſion, and had fell in company with Cornelius, who was one of another nation, and with whom Peter had ſuppoſed it was unlawful to keep company, he ſaid, "But God hath ſhewed me, that I "ſhould not call any man common or unclean." And after further conſideration, he ſaid, "Of a "truth I perceive, that God is no reſpecter of "perſons: but in every nation he that feareth "him, and worketh righteouſneſs, is accepted." That as he was preaching, the *Holy Ghoſt* fell on all them which heard the word, and cauſed an aſtoniſhment amongſt thoſe of the circumciſion, &c. that believed, becauſe that on the Gentiles alſo was poured out the gift of the *Holy Ghoſt*, which purges, purifies, and cleanſes the nations from inward filth and pollution; ſo that the viſion

ſion could have no reference to the cleanſing of the unclean birds, beaſts, and fiſhes, but to the cleanſing of the Gentile nations only. Vid. Acts x. 9, &c.

If any ſhould ſay, that liberty was given for the eating of unclean things, becauſe it ſeemed good to the *Holy Ghoſt*, and to the *Apoſtles*, to lay no other burthen upon the Gentiles than the abſtaining from meats offered to idols, from blood, things ſtrangled, and from fornication. Vid. Acts xv. 28, 29.

I would anſwer,

1. That this was a determination of the Apoſtles at a time when they were aſſembled at Jeruſalem, to conſult about circumciſion. For it appears that certain men had taught, that except the Gentiles were circumciſed, they could not be ſaved; and as the law of Moſes, which ſtrictly forbids the eating of unclean things was read in the ſynagogues every Sabbath-Day, the *Holy Ghoſt*, nor the *Apoſtles*, did not incline to lay on the new converts amongſt the Gentiles any other burthen, but the abſtaining from meats offered to idols, from blood, things ſtrangled, and from fornication.

But we muſt not ſuppoſe, that either the *Holy Ghoſt*, or the *Apoſtles*, gave liberty to commit murder, theft, adultery, and other atrocious crimes, becauſe they did not ſee fit to lay any other burthen upon the Gentiles, but the four things already

ready mentioned; for no other part of the Moſaical law was aboliſhed by the diſpenſation of the Goſpel, but the ceremonial, which ſtood only in meats and drinks, and divers waſhings; and carnal ordinances, which impoſed upon the Jews, until the time of the reformation, (vid. Heb. ix. 10.) until the New Covenant, or Diſpenſation of the Goſpel ſhould be eſtabliſhed, the laws put in the minds, and written in the hearts of believers. Vid. Heb. viii. 10. ſo that the moral part of the law of Moſes remains in full force to this time, and ought to be obſerved by all nations; for it correſponds exactly with the principles and doctrines of the Chriſtian religion. Does the Goſpel forbid murder? Yes, and ſo does this law. Does the Goſpel forbid theft? Yes, and ſo does this law alſo; ſo that they both correſpond in pointing out the principles of morality. As to the meats, drinks, waſhings, and carnal ordinances, which belonged to the Old Covenant; they conſiſted in thoſe bulls, goats, and other animals, that were offered as a ſacrifice under the Moſaical law, and the drinks and purifications uſed in thoſe times.

The eating of ſwine's fleſh is a practice that was undoubtedly derived from the Pagans, and took its riſe before the Moſaical law was given; and this practice has been handed down to us by tradition; for as our fathers did ſo do we; and

becauſe it is cuſtomary we continue the practice; for,

> Cuſtom is a living law, whoſe ſway
> Men more than all the written laws obey.

Had our teachers taught us when we were young, that ſwine's fleſh is unwholeſome and unclean, and that it is a tranſgreſſion of the law of God to eat, or even to touch it; we ſhould have eſteemed our practice to be a great ſin.

But though my doctrine may ſuit the Jews and other nations who obſerve the laws of the Lord, yet I do not expect it will pleaſe all the raiſers and venders of ſwine, nor all the lovers of pork; and, perhaps, ſome of them, may burn my book, becauſe I have laid down theſe principles; but by the ſame rule they may burn their Bibles, for the very ſame doctrine is mentioned there that I hold up, and it proceeded from the *Almighty himſelf*.

Some of the ſavage Nations eat human fleſh; and if I ſhould go and tell them that it is unwholeſome and illegal, it is probable they would not believe me, and that I ſhould make myſelf very unpopular amongſt them, by preaching ſuch a doctrine. The ſame may be ſaid of the Turks; ſhould I go amongſt them and preach againſt the eating of camel's fleſh.

But why do not the Chriſtians eat human fleſh like the Savages?—Why, becauſe it is not the cuſtom.—

tom.—Why do they not eat camel's fleſh like the Turks?—Why becauſe it is not the faſhion?—Why do they not eat horſes, dogs, cats, rats, and mice? Why becauſe they have not been brought up to it?—Why do they not wear a cap of cow-dung, ſoot and greaſe, and chooſe to live upon the entrails of animals, inſtead of their fleſh, like the Hottentots?—Why becauſe they have not been accuſtomed to it—But why do they eat ſwine's fleſh when it is forbidden by the law of Moſes, and found to be unwholeſome by the Phyſicians?—Why becauſe they have imbibed the practice from their cradles.

But perhaps ſome may ſay, that the people would ſtarve, if there were no ſwine.

I anſwer, that the expence of raiſing ſwine is very great; and that if the clean things which they eat, were to be given to the cattle and ſheep, it would do more good, more meat would be raiſed, and with leſs expence: it would be more wholeſome, and better for the community; and this is not only my opinion, but the opinion of many of the American farmers. But ſome have pretended, that all unclean animals are cleanſed under the Goſpel, becauſe Chriſt ſaid, "not that which goeth into the mouth, but that which cometh out defileth the man." But the queſtion is, what the man was that Chriſt meant? Divines have frequently mentioned an inward and an outward man in America; hence they have prayed, juſt before they were about to deliver a ſermon, "that

"they might be ſtrengthened both in the inward "and in the outward man."* Now if Chriſt meant that the outward man could not be defiled by things that goeth into the mouth, then of courſe we may eat all kinds of filth and poiſonous things, without being defiled; but our ſenſes tell us better; for we know that if we ſhould voluntarily eat ſuch things, they will defile our bodies, and ſoon put an end to our exiſtence; and that we ſhould be guilty of ſelf-murder by ſo doing. But it is evident that Chriſt did not mean the preſent earthly tabernacle, or outward man; but the inward man, for when he came to tell what it was that defiled the man, he had alluded to; he ſaid; "But thoſe things which proceed out of the "mouth, come forth from the heart, &c. That out "of the heart proceed evil *thoughts, murders, adul-* "*teries, fornications, thefts, falſe witneſs, and blaſ-* "*phemies.*" Vid. Matt. xv. 10, 11.—19, 20.

That thoſe were the things which defiled the man. But if he had meant that the poiſonous natures of unclean animals were changed, he would undoubtedly have told his diſciples; and Peter would not have thought that ſome of thoſe animals which he ſaw in his viſion were unclean.

But I have another objection to anſwer, before I quit the field, which is, that all unclean animals have been cleanſed and made fit for human food, according to the direction of the Apoſtle Paul given to Timothy. The words run thus: "Now "the ſpirit ſpeaketh expreſſly, that in the latter

* Eph. iii. 16.

"times ſome ſhall depart from the faith, giving "heed to ſeducing ſpirits, and doctrines of devils. "Speaking lies in hyprocriſy, having their conſci- "ence ſeared with a hot iron; forbidding to marry, "and commanding to abſtain from meats, which "God hath created to be received with thankſgiv- "ing of them which believe and know the truth. "For every creature of God is good, and nothing "to be refuſed, if it be received with thankſgiv- "ing: For it is ſanctified by the word of God and "prayer." Vid. 1. Tim. iv. 1, 2, 3, 4, 5.

Now the queſtion is, what were thoſe meats which God had created to be received with thankſgiving? were they only ſome of the fleſh of thoſe clean beaſts, &c. that are mentioned in the Moſaical law? or do they include all kinds of mad-dogs, ſerpents, and other poiſonous animals? Have we any account that informs us, that the Apoſtle ever eat any ſwine's fleſh, mad-dogs, or ſerpents? or that he ever received any ſuch animal food with thankſgiving, or that it was ever ſanctified to him by the word of God and prayer? If all thoſe poiſonous things were included, why did he not tell us plainly that they had been unclean under the law of Moſes, but were changed under the Goſpel, and that himſelf and his converts made uſe of ſwine, ſerpents and toads in their diet?—At another time he ſaid, "For I have not ſhun- "ned to declare unto you all the counſel of God." Vid. Acts, xx. 27. Now if any ſuch thing had taken

taken place at the changing of the natures of poiſonous animals, or if that had been the counſel of God, it ſeems that the Apoſtle knew nothing of it, or if he did, he uttered a falſhood by ſaying, he had declared all the counſel of God, when he had kept a matter of ſuch great importance behind the curtain, without revealing it to the world.

But it is ſaid, that every creature of God is good, and nothing to be refuſed, if it be received with thankſgiving, for it is ſanctified by the word of God and prayer.

Theſe creatures of God unleſs we explain the Scripture in a ſpiritual ſenſe cannot, in my opinion, be any thing but thoſe made and choſen for the food of the human race, clean animals that he had which are made holy by thoſe who uſe them with moderation, and receive them with thankſgiving; and though every thing is good in itſelf, as a part of the creation, yet we cannot ſuppoſe that every thing is fit to be eaten. It is ſaid, that when the Almighty viewed every thing that he had made, behold *it was very good.* Vid. Gen. i. 31. and although Adam and Eve were placed in a pleaſant garden, yet there was a *forbidden fruit* in it; and we find that there is ſtill a *forbidden fruit* to the poſterity of Adam, which conſiſts in thoſe unclean birds, beaſts and fiſhes, that are poiſon to our bodies, and deſtructive to our conſtitutions. A catalogue of theſe animals may be ſeen in the eleventh chapter of Leviticus.

Having

Having thus explained the words of the Apoſtle in a literal ſenſe; let us in the next place attempt to do it in one that is ſpiritual. Were not thoſe *meats* God had created to be received with thankſgiving, by them which believed and knew the truth, *ſpiritual meats?* Chriſt told the Jews to labour not for the meat which periſheth, but for that *meat* which endureth for ever. Vid. John vi. 27. And the apoſtle Paul in his Epiſtle to the Corinthians, ſpeaking of the Iſraelites paſſing through the ſea, mentions a *ſpiritual meat*, ſaying, "And "did all eat the ſame *ſpiritual meat.*" Vid. 1. Cor. x. 3. Now this *ſpiritual meat* is nothing but the *bread* of *life* that cometh down from Heaven, and giveth life to the world. Vid. John vi. 50. It is the *hidden manna*, the *tree of life*, and the inward and *ſpiritual ſupper of the Lord.* Vid. Rev. ii. 7—17. Chap. iii. 20. Now the Iſraelites that paſſed through the ſea did all eat of this *heavenly meat*, and ſo did thoſe Chriſtian converts to whom the Apoſtle wrote his epiſtles. Hence all true believers, or all holy and upright perſons, are partakers of this *heavenly food.* It is the *Holy Ghoſt* deſcending from Heaven and dwelling in the righteous. Hence they become the *ſons of God.* Vid. Rom. viii. 14. And their *bodies* are the *temples* of the *Holy Ghoſt.* 1. Cor. vi. 19. Which they are commanded not to *defile.* 1 Cor. iii. 17. Hence alſo the Almighty *dwells* in his *ſaints*, *walks* in *them*, and *ſtrengthens* and *enables them* both to *will* and to

do

do of his own good *pleaſure:* they who are thus made to partake of this ſpiritual meat, do taſte of the heavenly gift, are made partakers of the *Holy Ghoſt*, have taſted the good word of God, and the *powers* of the *world to come.* Vid. Heb. vi. 4, 5. They are thereby *married*, or *joined* to the *Lord*; and being thus *joined* unto him, become *one ſpirit.* Vid. 1 Cor. vi. 17.

The miniſtry of the Apoſtles under the diſpenſation of the Goſpel, was *ſpiritual*, and not carnal; hence it was ſaid, that God had made them able miniſters of the New Teſtament; not of the letter but of the *ſpirit.* Vid. 2 Cor. iii. 6. This miniſtry did not conſiſt in meats, and drinks, and divers waſhings, and carnal ordinances, like the miniſtry of the types and ſhadows under the Moſaical law: but in the glorious miniſtration of the ſpirit. Vid. 2 Cor. iii. 8.

Hence it appears that the *meat* that the Apoſtle mentioned to his ſon Timothy, was not carnal but *ſpiritual.* Hence alſo it could not be the fleſh of bulls, goats, calves, lambs or ſwine; but that *ſpiritual meat* which giveth *life* to the world, of which all good people are made partakers.

So that the *marriage* alluded to might be *ſpiritual*; and alſo the *meats*, which God had created to be received with thankſgiving by them which believed, &c. and every creature of God that was thus married, and fed by this ſpiritual meat was good; being ſanctifyed by the *word of God* (Vid. John, i. 1.

i. 1.) and prayer, and therefore ought not to be refuſed, or denied an admiſſion into the outward and viſible church.

That this miniſtry was ſpiritual, is evident by the directions that Paul gave Timothy, in the 14th verſe of the ſame chapter. "Neglect not "the gift that is in thee," which was a ſpiritual gift.

Thus have I endeavoured to explain this text in a ſpiritual ſenſe, which wholly excludes animal food, or any purgation of the brute creation.

Let us obſerve, that if we take the text in a literal ſenſe, the moſt filthy and poiſonous animals are good, and are not be refuſed in our diet, becauſe they may be ſanctified by the *word of God* and *prayer*. How abſurd and ridiculous muſt ſuch a way of reaſoning be? Can all the Clergy, and all the good men in the world, by praying over the carcaſe of a mad dog that is full of the moſt deadly poiſon, change its nature, and make it a clean beaſt?—No, no ſuch thing can be expected.

The things that I attempt to hold up and plead for are,

1. That if ſwine, and ſome other animals, were unclean under the Moſaical law, they continue to be ſo under the Goſpel; that their natures have not been changed, and therefore they muſt ſtill be unwholeſome to the human race.

2. That

2. That the fleſh of all animals fed upon filthy and poiſonous things, is not fit to be eaten.

3. That as the ſwine naturally feed upon ſuch things, they always were, and ſtill continue to be unclean.

4. That the *Great Governor* of the *Univerſe*, knowing they were unclean and unwholeſome, was pleaſed, in his infinite wiſdom to make it known to the ſons of men, and to forbid their eating or touching their fleſh.

5. That that law ſtill remains in force, and ought to be obſerved by all nations.

6. That the practice of eating ſwine's fleſh commenced in Chriſtendom in the times of Paganiſm, and has been handed down to the preſent generation by cuſtom and tradition.

7. That it is our duty to abſtain from every thing that may defile our bodies, or prejudice our health and conſtitutions.

8. That if we live altogether, or in part upon ſwine's fleſh, the whole of our bodies, or a part, will be ſwine, though in a different form, and perhaps have a ſwiniſh temper and diſpoſition.

9. That the Jews, Perſians, Abyſſinians, and habitants of the empire of the Great Mogul, do their duty in obeying the commandment of the Lord, in abſtaining from thoſe unclean things mentioned in the law of Moſes.

10. That the learned and ingenious phyſicians of the kingdom of Great-Britain ought to be applauded

plauded for their obſervations upon the operation of ſwine's fleſh in the human body; and for making known to the world, that it is by no *means* a *wholeſome diet*.

11. That it is our duty to make further obſervations, and to expunge out of our diet, and out of the practice of phyſic, every thing that hath already been, or may hereafter be, found prejudicial to our conſtitutions.

12. That we ought not to eat any thing offered to idols, nor any animal that dies of itſelf, nor things ſtrangled, nor any blood, or unclean thing, and to remember, that he that ſaid, "Thou "ſhalt not kill," ſaid alſo, concerning the eating of ſwine's fleſh, "*Of their fleſh ye ſhall not eat, and their carcaſe ſhall ye not touch.*" Levit. xi. 8, 44.—Iſai. lxv. 4.

Although I have raiſed the argument to its preſent heighth, perhaps ſome may ſay, that ſwine's fleſh is wholeſome, and that it is lawful to eat it, though it is forbidden in the law of the Lord, becauſe they have been accuſtomed to it, and it agrees with their conſtitutions.

I anſwer, that though it may ſeem to agree with a few conſtitutions for a time, yet it may produce ill effects afterwards. The ſavages may ſay, that human fleſh agrees with them, and yet it may be very prejudicial to their health, operate in an inviſible manner, like ſlow poiſon, and prove fatal at laſt.

Thoſe

Thoſe who have perverted the Scriptures, by pretending that the natures of unclean animals were changed, and that they were cleared of their poiſon under the diſpenſation of the Goſpel, muſt prove, before they can make me believe it, that Chriſt and his diſciples eat ſwine's fleſh, mad dogs, toads, and ſerpents. But as no ſuch thing is mentioned in the New Teſtament, we muſt conclude, that they ſubſiſted upon a wholeſome diet, walked honeſtly, and lived peaceably, without ſetting any bad example for their followers to practiſe.

But what inhuman, diſgraceful, and abominable conduct has there been in the different centuries that have rolled off ſince Chriſt was upon earth, amongſt the inhabitants of Chriſtendom, who have pretended to be his diſciples. How have they violated the laws, by following the example of the heathen, in defiling themſelves with unclean things? How have they wrangled, quarelled, and murdered one another; burnt great cities, and laid countries waſte? Now had they followed the example of the Prince of Peace, all thoſe murders and devaſtations would have been avoided.

I have often thought, whether an improper regimen does not have an effect upon the tempers and diſpoſitions of men. Who knows but that many have had ſwiniſh tempers and diſpoſitions, by reaſon of their living upon ſwine's fleſh.

Brandy and gunpowder, or rum and gunpowder, drank juſt before men ruſh into battle, will

will make them fear no danger; and the ſaliva of mad animals will produce madneſs; and why may not the fleſh of thoſe that are naturally unruly, filthy, and unclean, affect our conſtitutions, tempers, and diſpoſitions, in a greater or leſſer degree? Surely, we ought not to defile ourſelves with ſuch abominable things, but to make a difference between thoſe animals that may be eaten and thoſe that may not, for the former are clean, but the latter are *vice verſa*, (vid. Levit. xi. 44, 47.) this will tend to preſerve our health and happineſs, a thing is required of us by HIM, whoſe *laws* and *commands* are *holy*, *juſt*, and *good*. Vid. Rom. vii. 12.

CHAP. LX.

Sundry Obſervations of the Multiplicity and Longevity of Animals. Cautions concerning unruly Creatures.

IN the preceding Chapter I have treated upon a ſubject that may pleaſe ſome people and diſpleaſe others. For the lovers of ſwine's fleſh, and thoſe who get money by the raiſing and ſelling of it, would not be willing to forſake a thing they ſo much admire, even if there was a law made againſt it. However, as it is the duty of every perſon to diſcloſe to the Public, whatever appears to be prejudicial to the community, I hope I ſhall be excuſed for the method I have taken. They that lay down a doctrine according to the *law* of the *Lord*, and the principles of natural philoſophy, have a much better foundation to work upon than thoſe who have nothing but *tradition*, and the example of the Heathen. Vid. Iſai. lxv. 4.

We laugh at other nations on account of ſome of their ill cuſtoms and manners, and it is probable they laugh at us for ſome of ours. But I hope there may be a general reformation in proceſs of time, that as the knowledge of philoſophy advances,

advances, every thing that is prejudicial to our health and happineſs will be removed out of the way.

Thoſe who may be pleaſed to forſake the practice of raiſing ſwine, may raiſe cattle and ſheep with leſs trouble and expence, have more meat, and that which is much more healthy and ſuitable for their conſtitutions.

Theſe things being premiſed, I ſhall, in the next place, ſay ſomething concerning the multiplication and longevity of animals.

Multiplication.

		Young brought at once.
Mare goes with young	11 months,	from 1 to 2
Cow	9 ditto,	1 — 3
Ewe	20 weeks,	1 — 3
Goat	20 ditto,	1 — 3
Sow	16 ditto,	4 - 16
Bitch	9 ditto,	3 — 4
Cat	9 ditto,	2 — 4
Fox	9 ditto,	1 — 4
Elephant	3 years,	0 — 1
Bear	40 days,	1 — 2

The Longevity, &c.

	Years.
Horſe has been known to live	40
Ox	16
Bull	16
Cow	16
Sheep	10
Goat	10
Swine	20
Dog	20
Cat	10
Fox	15
Camel	100
Dromedary	60
Elephant	200

Fowls.

Swan	300
Gooſe	300
Dunghill cock	10
Pelican	60

But a few of theſe animals arrive to the age I have mentioned. The age of the gooſe is doubtful.

Cattle that are apt to puſh with their horns, or run at people, ought to be kept in cloſe confinement, or killed immediately. I have been knocked down twice by ſuch kinds of mad animals. And I was acquainted with a gentleman who was killed by a ram that was wont to puſh with his horns.

CHAP.

CHAP. LXI.

Obſervations on the Freedom of Speech, and the Liberty of the Preſs.

I HAVE already mentioned, page 123, "That the *freedom* of *ſpeech*, and the *liberty* of the *preſs*, are the natural rights of every man, providing he doth not *injure himſelf* nor *others* by his *converſation* or *publications*." But people have ſometimes been *debarred* from the *liberty* of theſe *natural rights* by *tyrants* and *rebels*. The innocent have been confined in priſons, upon falſe accuſations, and not allowed the privilege of defending themſelves, either by the freedom of ſpeech, or the liberty of the preſs, whilſt to deſtroy their reputation, ſlander and defamation has been ſpread abroad by lying tongues, licentious preſſes, and pulpit oratory.

When rebels can obtain the command of theſe powerful engines, viz. the lying tongue, licentious preſs, and the clergy, ſedition may be eaſily ſown, treaſon and rebellion excited, the government ſubverted, and anarchy and confuſion let looſe

looſe, to the deſtruction of the lives, *liberty* and *happineſs* of the people. And if any peaceable and quiet perſon refuſes for conſcience ſake, to follow the multitude to do evil; or if he endeavours to convince the miſguided of their error, or if he even lies ſtill, and attempts to be *neuter*, and the ſlandering tongue is let looſe againſt him, he muſt be dragged off to *priſon*, confined in a *dungeon*, and not allowed the *liberty* of *ſpeaking*, *writing*, or *printing* any thing in his own *defence*.

But although the freedom of ſpeech, and the liberty of the preſs, ſhould not be denied to any perſon, yet theſe liberties ought not to be converted to licentious practices, for they tend to deſtroy the public tranquillity and make mankind unhappy.

I ſhall conclude this chapter with the following lines:

THE FREEDOM OF THE PRESS.

Though men and women have a *right*,
With pleaſure and with eaſe,
To *ſpeak* and *print* as they *delight*,
Whenever they may pleaſe.

Yet, they've no *right* for to expand,
(Contention to encreaſe,)
Sedition through the *peaceful land*,
To interrupt the *peace*.

Hence

Hence the vile wretch, that wou'd *ſuppreſs*,
The *grand important thing*,
The *freedom* of the *printing-preſs*,
Moſt *ſurely* ought to *ſwing*.

And *he* that doth *ſedition ſow*,
With his *tongue*, or the *preſs*,
Unto the *gallows* ought to *go*,
For ſuch *baſe wickedneſs*:

Becauſe it may make *wars ariſe*,
Deſtruction too *expand*:
The *people looſe* their *precious lives*,
And *deſolate* the *land*.

Let *all* therefore who do *regard*,
Their *good* the world around:
Stand conſtantly upon their *guard*,
That *peace* may ſtill *abound*.

Suppreſs *ſedition*, *wrath*, and *ſtrife*,
Make *wickedneſs decreaſe*,
And truly live a pious life,
In harmony and peace.

That when they *die* they may *ariſe*,
Where *peaceful ones* are *bleſt*,
In *realms* of *joy* above the *ſkies*,
With *happineſs* and *reſt*.

Compoſed at London, May 29, 1791.

CHAP

CHAP. LXII.

Magnetical Communications.

IT was not my deſign to have ſaid any more upon *Animal Magnetiſm* in the *American Oracle*, inaſmuch as I have already treated of it in the 23d chapter; where, after a deep contemplation on the ſubject, I attempted to render a *philoſophical reaſon* for the *wonderful operations* of the *magnetical effluvia* upon the *human frame*: But as I have received further information; and have an inclination to promote the *progreſs* of *ſcience*, by diſcloſing every thing that may induce mankind to make further diſcoveries and improvements in things that may be beneficial to the human race; I ſhall juſt mention in this chapter, ſome of the benefits which have already reſulted from magnetical operations, as communicated to me, by Mr. *John Cue*, of the City of London, a very *worthy gentleman*, who, not for worldly gain, but for the ſake of *relieving* the *diſtreſſed*, and making *diſcoveries* and *improvements* in the ſcience, has been a conſtant *practitioner* in *Animal Magnetiſm*, ever ſince

ſince the 3d of November, 1789; and although, he has often had more than one hundred patients in a day, and has wrought many *cures*, yet he has not charged one *farthing* for his *ſervices*; and I underſtand that he intends to *practiſe gratis* for the future; from hence we may conclude, that he has no inclination to impoſe upon the public, either by continuing the practice of the ſcience, or by any account he has communicated concerning the benefit of his magnetical operations.

I have received a great number of *certificates*, which give an account of ſome of the remarkable *cures* which this gentleman has wrought by this new *remedy*; but, for the want of room, I ſhall mention but a few of them, which are as follows, viz.

I, *Jane Caſtle*, of No. 14, Criſpin-ſtreet, Spital-fields, do declare, that I have been afflicted with a ſevere rheumatiſm in the whole habit, but eſpecially in my head, ſtomach, arms, hands, loins, ſide, legs and feet, attended with ſuch excruciating pains, as led me to apprehend every paroxiſm would terminate in my death; beſides which I had a continual ſwimming in my head, and a great ſwelling in my legs. In this unhappy ſtate I continued for the ſpace of 25 years, though under the care of ſeveral eminent phyſicians, but without ſucceſs. On my firſt application to the faculty, they ordered me an iſſue in each leg but without the leaſt relief. I was alſo ſubject to ſuch cold

cold ſenſations, that I could never go to reſt without hot flat irons bound in flannels being applied to my ſtomach, when at the ſame time my feet were by an intermitting fever, in ſuch violent heat as to oblige me always to lay them out of bed. My diſordered ſtate of body continued to grow worſe, ſo that at laſt I was afflicted with epileptic fits. In this unhappy ſituation I applied to Mr. *Cue*, to be treated by the remedy commonly called *Animal Magnetiſm*; when, to my great *ſurprize*, I had no ſooner ſat down, than my whole frame was put into the moſt violent *conflict* and *perturbation*: I began to loſe my recollection, and imagined myſelf in bed, and felt as it were the flannels with the hot irons dropping from me: at the ſame time I had a ſenſation of ſomething like an *electric ſhock*, *piercing* me *through* and *through*, and from that time my fits left me, with all my other diſorders. My iſſues dried up, although I uſed every method to keep them open, yet received no *injury* therefrom; and though I was 70 years of age, when I applied to Mr. *Cue*, yet *thanks* be to *God*, I obtained a perfect *cure*, and now enjoy a good ſtate of health, though my firſt application to him was in January 1789.

May 3, 1791. JANE CASTLE.

John Dorking, of Weſtham, in Eſſex, breeches-maker, affirms, that he was afflicted with a ſevere rheumatiſm in the whole habit, but eſpecially of the right arm and head, for the ſpace of eight years;

years; during which time, a great variety of medicines were tried without effect—till fortunately hearing of the *cures* performed by Mr. *Cue*, he applied to that *gentleman*, who generouſly undertook, and in a ſhort time *reſtored* me to the uſe of my *arm*, removed the *pain* and *giddineſs* of my *head*, and I am at this time in perfect health. Witneſs my hand, this 28th of July, 1790.

JOHN DORKING.

Witneſs Thomas Marſh, M. D. of Highworth.

I, *Mary Gill*, daughter to Mr. Richard Gill, ſhoe-maker, No. 9, Great Eaſt-Cheap, aged 25, have been unhappily afflicted with the diſorder called the epilepſy, or falling ſickneſs, from the time, I was 13 years of age; and at the age of 16, I grew much worſe, my fits came on every fortnight, and often continued eleven hours. But, by the bleſſing of God, to all human appearance, I have met with a complete cure, by the treatment called *Animal Magnetiſm*, without any other *remedy* whatſoever, having been recommended to Mr. *Cue*, for that purpoſe, and now am to be heard of at Meſſrs. Simpſon's and Robinſon's, Hoxton,

MARY GILL.

N. B. For the above diſorder I was a patient in Guy's-hoſpital, but diſcharged as incurable, March 19, 1791.

I was preſent and ſaw the wonderful operations of the magnetical effluvia upon this patient; when

when ſhe went in a criſis, ſhe commonly ſprang up from her chair, took hold of ſomething, and afterwards had much ſuch agitations and convulſive motions as deſcribed, page 208.

I ſhall conclude this chapter by juſt mentioning a few of the other remarkable cures performed by Mr. *Cue's* magnetical operations, without extracting the whole of the certificates; but it appears that the greateſt part of his patients had been given over as incurable by the phyſicians.

Mrs. Lucius Philips, No. 5, Paddington-green, after labouring under a grievous nervous complaint for near ſix years, received a *perfect cure*, only by one *magnetical operation*.

Mrs. Mary Stears, having been afflicted eleven years with the ſick head ach, vomitings, numbneſs, pain, and hardneſs in her ſide, ſwelling in her legs, cold ſenſations, &c. received a complete cure by Animal Magnetiſm; and for a ſprain in her knee received afterwards, was *cured* by the ſame *remedy*.

Mrs. Charlotte Rotelage, No. 20, Providence-row, after having the ſick head ache, and a pain in her ſide for two years, received a perfect *cure*, by the *magnetical effluvia*.

A child, aged five years, belonging to Mrs. Elizabeth Cleveland, Paddington-green, after being afflicted with blindneſs ſeven months was cured in three weeks, by being treated twice in a week.

A child

A child aged three years, belonging to Mrs. Martha Allen, No. 9, Motley-court, Holywell Mount, after being treated twice, voided 20 knots of worms, and was reſtored to health.

A boy who had a decline, belonging to Mr. Travers Arundell, Keat-ſtreet, Spital-fields, was completely cured.

Mrs. Mary Swan, No. 23, St. John's-ſquare, Clerkenwell, having been deaf eleven years, was cured of the diſorder.

Mrs. Mary Bay, No. 10, Slaughter-ſtreet, Bethnal-Green, having been afflicted five years with a fever, and a pain in her ſide, was reſtored to perfect health.

Mrs. Margaret Tyſon, Surry-ſide of Blackfriar's-road, after labouring under a rheumatic complaint, attended with great pain for three years, was reſtored to *health*.

A child aged 13 months, belonging to Mr. John Johnſon, Motley-court, Holywell-Mount; was *cured* of an inflammation in the ſtomach and bowels, attended with a hard ſwelling and convulſions.

Mrs. Mercy Benſon, having been afflicted five years, with epileptic fits, attended with a delirium, was reſtored to her health and ſenſes.

Mrs. Jane Allen, No. 146, White Croſs-ſtreet, was *cured* of various diſorders of 12 years ſtanding, occaſioned by her drinking cold water, when ſhe was very hot.

Mr.

Mr. Steven Holden, No. 167, White-Croſs-ſtreet, having been afflicted ten years with lameneſs, a loſs of appetite, memory and eye-ſight, occaſioned by lying in a damp bed, was reſtored to *perfect health*.

Mrs. Elizabeth Hathaway, Houndſditch, was afflicted about three years with a violent pain in her face, cauſed by a cold, which terminated in a locked jaw, and rendered her ſituation ſo dreadful, that ſhe almoſt periſhed with hunger; but to her unſpeakable ſurpriſe and joy, was ſo far relieved in 20 minutes, after Mr. *Cue* began to treat her, that ſhe could take a table ſpoon into her mouth, and at laſt received a perfect *cure*.

Beſides theſe remarkable cures, the certificates mention others performed on patients, ſome of which were afflicted with blindneſs, ſome with deafneſs, loſs of ſpeech, fevers, violent pains, lameneſs, ulcers, flatulencies, palpitation of the heart, obſtructions, nervous, bilious, hyſterical, ſcrophulous and aſthmatical complaints. Such have already been the wonderful operations and good effects of the magnetical effluvia in the cure of diſtempers. Let the ſcience therefore be ſtill cultivated and improved in the beſt manner.

CHAP.

CHAP. LXIII.

Modern Diſcoveries, Inventions, and Opinions.

ELECTRICITY, by *Mr. Ottogericke*, *Mr. Cuneus*, *Dr. Franklin*, and *Dr. Prieſtly*.

Mr. Harriſon's time-piece, in England,

Hadley's Quadrant, by an American.

Mr. *Rittenhouſe's* Orrery, at Philadelphia.

Dr. Herſchel's Aſtronomical Diſcoveries, viz. Georgium Sidus, with its two Satellites. Two moons of Saturn, the rotation of his ring, and ſpots in his body. Alſo the mountains in our moon, which are two miles high according to his *teleſcope* which magnifies 6500 times.

Air Balloons invented in France.

Dr. Prieſtly's Diſcoveries in the qualities of the air—in England.

The Hon. Baron Swedenborg's Theology.—Great-Britain.

The ſtrange mode of worſhip adopted by the *Shaking Quakers*, in America.

A remarkable *Iron Bridge*, built over the river Severn, at Colebrooke-Dale, in the County of Salop, near Wales, in England: It contains about

500

500 tons of iron. The arch is 100 feet within, and 45 above the water the inside, but 55 the outside.

Animal Magnetism.

The American Constitution, framed by the Federal Convention, at Philadelphia.

The Albion Grist-mills, with 20 pair of stones, carried by a steam of fire, near Black Friar's-bridge, London. They have lately been burnt.

The *Radix Ginseng*, in Canada, Vermont, and Pennsylvania.

The Author's *Hypothesis* upon the cause of the *Aurora Borealis*, at Vermont.

Many islands, &c. discovered in the Southern Hemisphere, and other parts of the world, by *Capt. Cook*, and other Navigators.

Some remarkable *Springs*, and *Pits* of *Coal*, discovered in America.

A *Tide-table* invented by the *Author*, for the Sea Ports of the North American Continent.

The Constitution of France, framed by the National Assembly.

Needless compositions expunged out of the London and Edinburgh Pharmacopœias.

The Great Constitution of *Liberty* framed by the *Author*, at London.

Mr. Pope's remarkable *Orrery*, and also his Hypothesis upon the cause of the *Gravitation* of *Bodies*.

Mr. Walker's, Transparent Orrery. Westminster, London.

A new

A new *waſhing-mill*, London.

A curious iron bridge, to be placed over the Schuylkil, near Philadelphia, invented by *Mr. Thomas Paine*, in England.

A new *carriage*, with eight wheels, drawn by three horſes, that will carry 14 people, he inſide, Weſtminſter, London.

The *Author's Hypotheſis*, upon the cauſe of the wonderful *operation* of the *Magnetical Effluvia* in the *human frame*, &c. Let us endeavour to make further diſcoveries.

CHAP.

CHAP. LXIV.

How to preſerve our Health when it is preſent and Reſtore it when it is abſent, and make ourſelves happy in this World, and the next.

I COME now to the grand and important things, which I have propoſed, viz. How to preſerve our health when it is preſent, and reſtore it when it is abſent, and alſo how to make ourſelves happy in this world, and the next.

I ſhall therefore recommend 1. A good houſe, ſituated in an agreeable neighbourhood, where there is a wholeſome air, and good water.

2. Good cloathing, and a ſuitable diet, free from all kinds of filthy and poiſonous things.

3. Induſtry, gentle exerciſe, and temperance.

4. When our health is impaired let us employ the beſt phyſicians, and take the beſt remedies.

5. A contentment with the allotments of Providence, through all the various changing ſcenes of life.

6. A ſtrict obſervation of the *things* contained in the *American Oracle*, and eſpecially thoſe mentioned

tioned in the *Epiſtle* of the *Author* to all *People*, *Nations* and *Languages*.

Finally, let us worſhip the *Creator*, live *peaceably*, and walk *honeſtly*, for it comprehends all the duties that are required of rational creatures. *Farewell.*

F I N I S.

8 OC 63

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